Drinking Water Surveillance Program

BRANTFORD WATER TREATMENT PLANT

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BRANTFORD WATER TREATMENT PLANT

DRINKING WATER SURVEILLANCE PROGRAM

ANNUAL REPORT 1988

FEBRUARY 1990

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EXECUTIVE SUMMARY

DRINKING WATER SURVEILLANCE PROGRAM

BRANTFORD WATER TREATMENT PLANT
1988 ANNUAL REPORT

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. Currently, 52 plants are being monitored.

The Brantford Water Treatment Plant is a conventional treatment plant which treats water from the Grand River. The process consists of coagulation, flocculation, sedimentation, filtration, disinfection and fluoridation. Powdered Activated Carbon is used for taste and control when necessary. This plant has a design capacity of 113.6 x 1000 m^3/day and serves a population of approximately 75,000.

Water samples from raw and treated water and two distribution system sites were taken on a monthly basis. The Brantford Water Supply was sampled for approximately 160 parameters monthly during 1988. Parameters were divided into the following groups: Bacteriological, Inorganic and Physical (Laboratory Chemistry, Field Chemistry and Metals) and Organic (Chloroaromatics, Chlorophenols, Pesticides and PCB, Phenolics, Polyaromatic Hydrocarbons, Specific Pesticides and Volatiles). Specific Pesticides and Chlorophenols were analysed in June and December only.

A summary of results is shown in Table 1.

Inorganic and Physical parameters were below respective health related ODWOs.

Of a total of approximately 110 Organic parameters tested for on a monthly basis, none exceeded any health related ODWOs.

During 1988 the DWSP sampling results indicated that the Brantford Water Supply produced good quality water at the plant and this quality was maintained in the distribution system.

TABLE 1

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP

SUMMARY TABLE BY SCAN

SCAN	RAW			TREATED			SITE 1			SITE 2		
	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE
BACTERIOLOGICAL	40	39	97	39	11	28	43	15	34	41	13	31
CHEMISTRY (FLD)	36	36	100	68	68	100	131	131	100	126	126	100
CHEMISTRY (LAB)	245	224	91	245	213	86	430	402	93	430	406	94
METALS	288	182	63	287	163	56	564	337	59	564	348	61
CHLOROAROMATICS	154	0	0	154	0	0	168	1	0	154	0	0
CHLOROPHENOLS	12	0	0	12	0	0	.	.	.	.	.	.
PAH	204	0	0	204	0	0	.	.	.	.	.	.
PESTICIDES & PCB	364	0	0	375	1	0	396	1	0	375	0	0
PHENOLICS	12	7	58	12	8	66	.	.	.	.	.	.
SPECIFIC PESTICIDES	57	0	0	57	0	0	1	0	0	1	0	0
VOLATILES	286	0	0	281	35	12	283	35	12	282	35	12
TOTAL	1698	488		1734	499		2016	922		1973	928	

NO HEALTH RELATED GUIDELINES WERE EXCEEDED

A POSITIVE VALUE DENOTES THAT THE RESULT IS GREATER THAN THE STATISTICAL LIMIT OF DETECTION AND IS QUANTIFIABLE
A '.' INDICATES THAT NO SAMPLE WAS TAKEN

DRINKING WATER SURVEILLANCE PROGRAM

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INTRODUCTION

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. Currently, 52 plants are being monitored.

The DWSP was initiated at the Brantford Water Treatment Plant in March of 1987. An Annual Report was published for 1987 (ISSN 0840-5344).

This report contains information and results for 1988.

PLANT DESCRIPTION

The Brantford Water Treatment Plant is a conventional treatment plant which treats water from the Grand River. The process consists of coagulation, flocculation, sedimentation, filtration, disinfection and fluoridation. Activated silica is added as a coagulant aid; powdered activated carbon is used for taste and odour control when required; sulphur dioxide is used as a

dechlorinator and ammoniation is used to produce a long-lasting chloramine residual in the distribution system. This plant has a design capacity of 113.6 x 1000 m^3/day and flows for day of sampling ranging from 40.8 x 1000 m^3/day to 68 x 1000 m^3/day. The plant serves a population of approximately 75,000.

The plant location is shown in Figure 1. Plant process details, in a block schematic, are shown in Figure 2. General plant information is presented in Table 2.

METHODS

Water samples were obtained from four DWSP approved locations;

i) Plant Raw - The water originated from the raw water wet well prior to chlorination and was sampled through stainless steel sample lines. The sample tap is located near the wet well.

ii) Plant Treated - The water originated from the clear well after addition of all treatment chemicals and was sampled through stainless steel sample lines. The sample tap is located in the control room.

iii) Distribution System - Site 1 - This house is approximately 1.7 kilometers from the plant. Water was sampled through a copper sample line at the kitchen tap.

FIGURE 1

DRINKING WATER SURVEILLANCE PROGRAM

SITE LOCATION MAP

BRANTFORD WATER TREATMENT PLANT

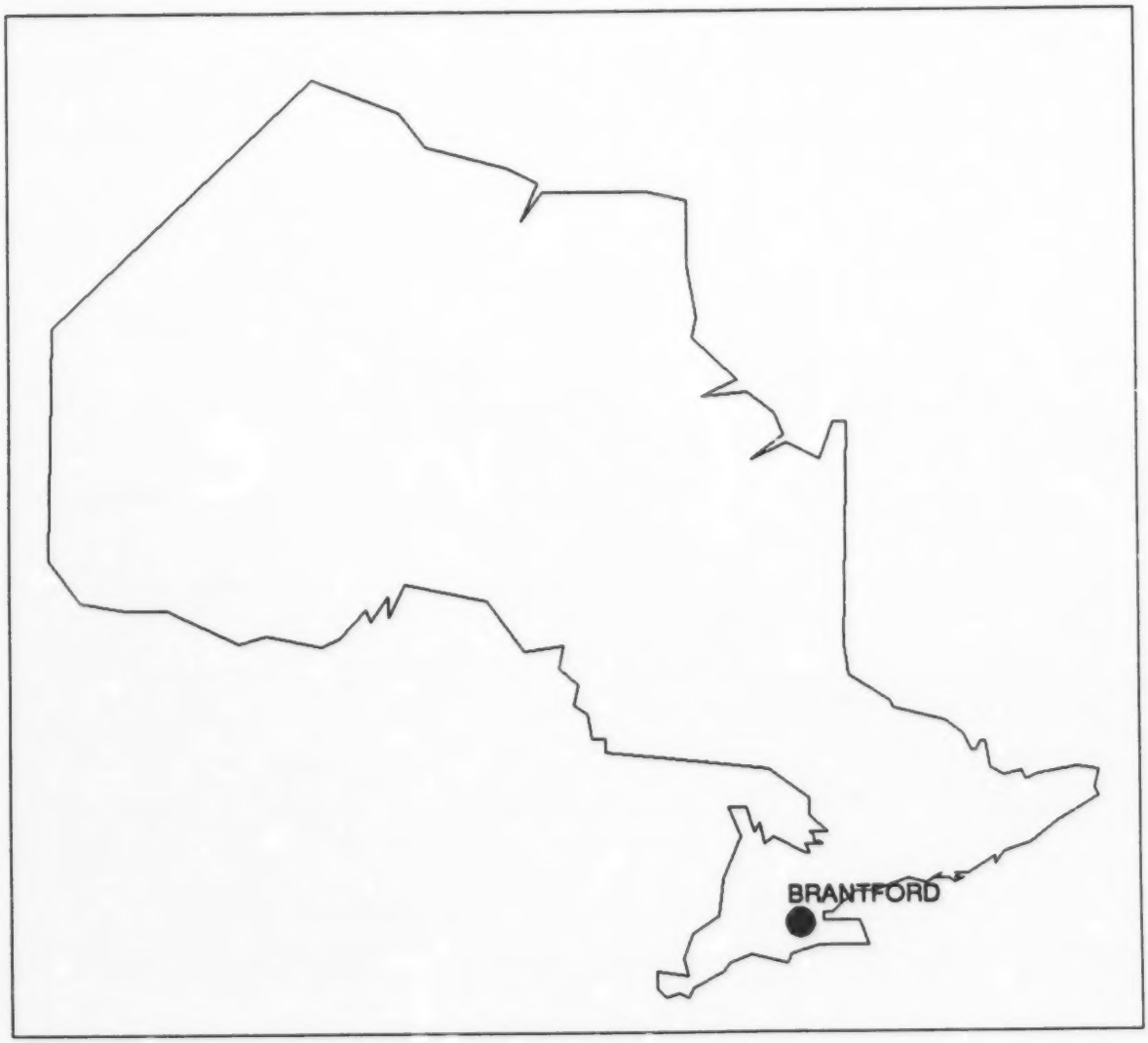

Figure 2

BRANTFORD WATER TREATMENT PLANT

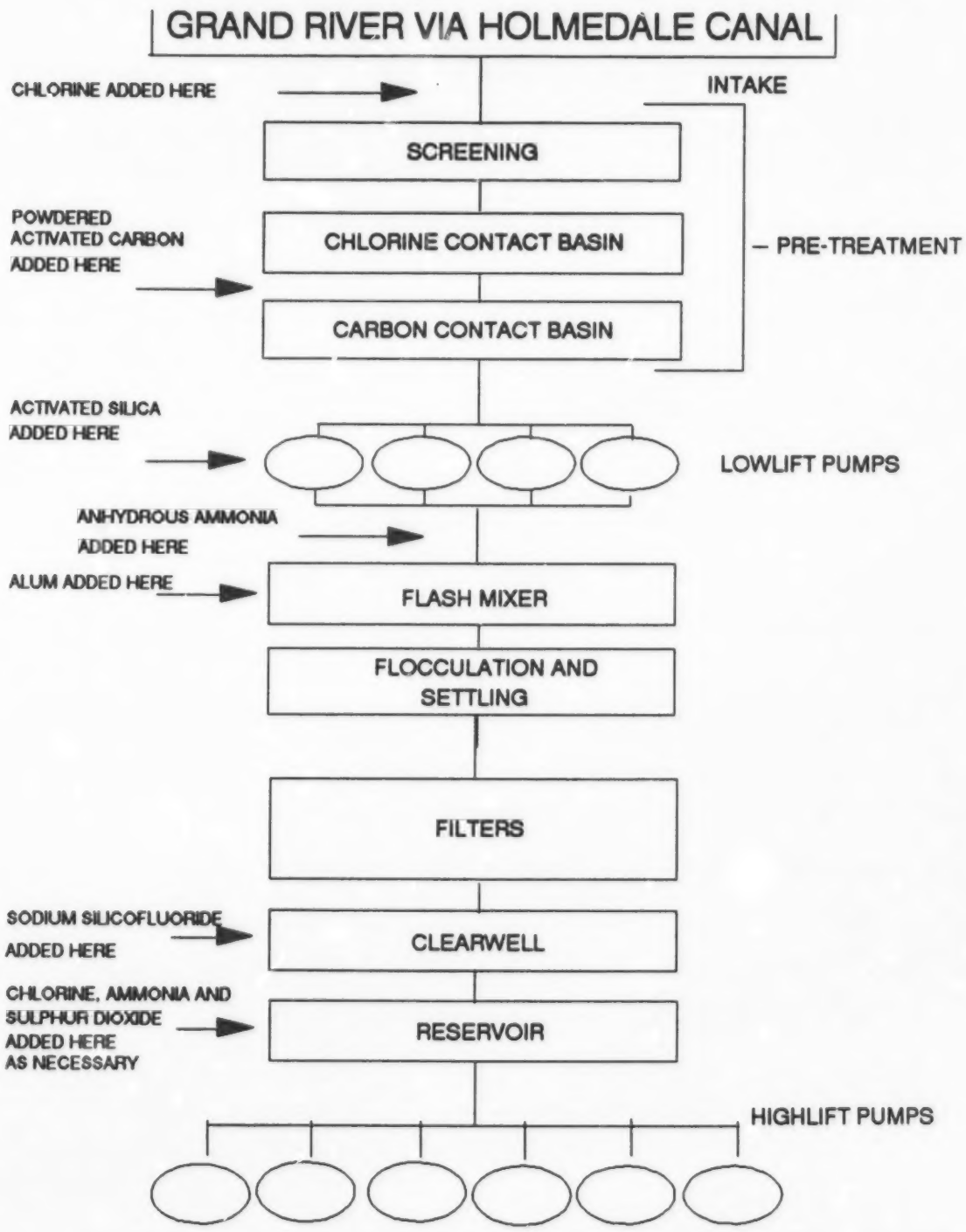

TABLE 2

DRINKING WATER SURVEILLANCE PROGRAM ANNUAL REPORT

GENERAL INFORMATION

BRANTFORD WATER SUPPLY SYSTEM

LOCATION:	324 GRAND RIVER AVENUE BRANTFORD, ONTARIO N3T 4Y8 (519-753-7391)
SOURCE:	RAW WATER SOURCE - GRAND RIVER VIA HOLMEDALE CANAL
RATED CAPACITY:	113.6 (1000 M^3/DAY)
OPERATION:	MUNICIPAL
PLANT SUPERINTENDENT:	F. SMITH
MINISTRY REGION:	WEST CENTRAL
DISTRICT OFFICER:	B. CREAMER

MUNICIPALITY SERVED	POPULATION
BRANTFORD WATERDOWN	75,081

iv) Distribution System - Site 2 - This house is approximately 10 kilometers from the plant. Water was sampled through a copper sample line at the kitchen tap.

Sample lines in the plant were flushed prior to sampling to ensure that the water obtained was indicative of its origin and not residual water standing in the sample line.

At the distribution system location two types of samples were obtained: a standing and a free flow. The standing sample consisted of water that had been in the household plumbing and service connection for a minimum of six hours. These samples are used to make an assessment of the amount by which the levels inorganic compounds and metals may be changed on standing due to leaching from (or deposition on) the plumbing system. The only analyses carried out on standing samples therefore, are General Chemistry and Metals. The free flow sample represented fresh water from the distribution main that had been flowing at the sample tap for five minutes before the sample was taken.

Attempts were made to capture the same block of water at each sampling point by taking the retention time into consideration. The retention time was calculated by dividing the volume of water between the two sampling points by the sample day flow. For example, if it was determined that the retention time within the plant was five hours then there would be a five hour interval

between the raw and treated sampling. Similarly, if it was estimated that it took approximately one day for the water to travel from the plant to the distribution system site, this site would be sampled one day after the treated water from the plant.

Stringent DWSP sampling protocols were followed to ensure that all samples were taken in a uniform manner.

Sample day flow, treatment chemical dosages and Field Chemistry measurements such as Turbidity, Chlorine Residuals, pH and Temperature were recorded on the day of sampling and were entered on the DWSP data base as submitted.

RESULTS

The Brantford Water Supply raw and treated water and the distribution system was sampled for approximately 160 parameters on a monthly basis. The Specific Pesticides and Chlorophenols were sampled in June and November only. Polynuclear Aromatic Hydrocarbons and Phenolics are only analysed in the raw and treated water. As a result of an unforeseen emergency the laboratory capacity was exceeded and analysis for volatiles could not be carried out when the samples were received. Since analysis for volatiles is no longer valid after four weeks of storage, volatile results for January and February are not available.

Table 3 contains information on the sample day retention time, flow

rate and treatment chemicals used and their associated dosages.

Table 4 is a summary break-down of the number of water samples analysed by parameter and by water type. The number of times that a positive or trace result was detected is also reported.

Positive denotes that the result is greater than the statistical limit of detection established by the Ministry of the Environment (MOE) laboratory staff and is quantifiable. Trace (<T) denotes that the level measured is greater than the lowest value detectable by the method but lies so close to the detection limit that it cannot be confidently quantified.

Table 5 presents the results for parameters detected on at least one occasion.

Table 6 lists all parameters analysed on DWSP.

Associated guidelines and detection limits are also supplied on tables 5 and 6. Parameters are listed alphabetically within each scan.

DISCUSSION

General

Water quality is judged by comparison with the Ontario Drinking

Water Objectives (ODWOs) as defined in the 1984 publication (ISBN 0-7743-8985-0). The Province of Ontario has health related and aesthetic objectives for 49 parameters, these are are currently under review. When an ODWO is not available guidelines/limits from other agencies are consulted. The Parameter Listing System (PALIS) recently published (ISBN 0-7729-4461-X) by the MOE catalogues and keeps current over 1750 guidelines for 650 parameters from agencies throughout the world.

Although some of the parameters measured on DWSP may be present in the raw and treated water as a result of pollution, many of the compounds detected are naturally occurring or are treatment by-products.

Plant operational personnel address occurrences of taste and odour or biological water quality parameters. The DWSP does not assess these aspects of the water supply.

As stated under Results, traces do not indicate quantifiable values, as defined by established MOE Laboratory analytical reporting protocols. While they can be useful in trend analysis or confirmation of the presence of a specific contaminant that is repeatedly detected at these levels, the occasional finding of a trace level of a contaminant is not considered to be significant. **DISCUSSION OF GUIDELINES AND LIMITS THEREFORE, IS ONLY CONDUCTED ON POSITIVE RESULTS.**

Bacteriology

Positive results for the Bacteriology scan were present eleven times in the treated water, fifteen times in the distribution system Site 1 water and thirteen times in the Site 2 water. The positive parameters were Standard Plate Count, Total Coliform and/or Total Coliform Background. Total Coliforms were detected at 9 counts/mL in the September Site 1 water and 1 count/mL in the October Site 1 water. The District Officer was notified of the September findings.

Standard Plate Count is a test used to supplement routine analysis for Coliform bacteria. The limit for Standard Plate Count (at 35 °C after 48 hours) in the ODWO is 500 organisms/mL based on a geometric mean of 5 or more samples. High Standard Plate Counts occurred five times at distribution system Site 2 and once in the treated water. Substantial Total Chlorine Residuals (0.4 mg/L or more) were present but the high standard plate counts were detected from May to November when the temperature in the distribution system was high. The High Standard Plate Counts in the distribution system probably reflect increased bacteriological growth as a result of high temperatures.

Guidelines for bacteriological sampling and testing of a supply are developed to maintain a proper supervision of its bacteriological

quality; the routine monitoring program usually requires the taking of multiple samples in a given system. Full interpretation of bacteriological quality cannot be made on the basis of single samples. Further, bacteriological limits were developed in acknowledgement that the presence of coliforms may be detected due to their non-uniform distribution throughout the distribution system and the fact that their enumeration is subject to considerable variation. For these reasons, the occasional finding of low numbers of coliform organisms is not unexpected. Routine bacteriological monitoring, as outlined in the ODWOs is carried out by the operating authority.

Inorganic and Physical

Laboratory and Field Chemistry

The results for Laboratory Chemistry and Field Chemistry scans were below applicable health related ODWOs.

There are also ODWOs that are set for parameters which are related to aesthetic quality rather than health.

Colour values exceeded the aesthetic ODWO of 5 True Colour Units (TCU) four times in the treated water, four times in the free flow Site 1 water and five times in the Site 2 water. Colour in drinking water may be due to the presence of natural or synthetic organic substances as well as certain metallic ions.

The Total Ammonium levels are high, not as a result of naturally occurring ammonia (eg. from sewage pollution) but from the anhydrous ammonia added in the treatment process. The ammonia is added prior to the addition of alum to combine with the chlorine added during pre-chlorination to produce a more stable chlorine and thereby limit the production of trihalomethanes. Ammonia is also added if post-chlorination is required, to provide a long lasting combined chlorine residual in the distribution system. While the European Economic Community has an aesthetic guideline of .05 mg/L, the Maximum Admissable Concentration is .50 mg/L and is set as a result of the concern for potential sewage pollution and its detection.

It is desirable that the Temperature of drinking water be less than 15°C; the palatability of water is enhanced by its coolness. A temperature below 15°C will tend to reduce the growth of nuisance organisms and hence minimize associated taste, colour, odour and corrosion problems. The temperature of the delivered water may increase in the distribution system due to the warming effect of the soil in late summer and fall and/or as a result of higher temperatures in the source water. The desired ODWO was exceeded fifteen times in the treated water and free flow distributed water, through the summer and early fall.

The ODWOs indicate that a hardness level of between 80 and 100 mg/L

as calcium carbonate for domestic waters, provides an acceptable balance between corrosion and incrustation. Water supplies with a hardness greater than 200 mg/L are considered poor and would possess a tendency to form scale deposits and result in excessive soap consumption. The source water at Brantford is the Grand river, the watershed of which drains a limestone area; hardness components would thus tend to be leached from the surrounding geological formations. Hardness levels at Brantford were all in excess of 250 mg/L as CaCO3.

The European Economic Community (EEC) aesthetic guideline level for Conductivity of 400 UMHO/cm was exceeded in all of the water samples, and is a result of the high hardness levels.

The Langelier Index is used extensively in estimating the corrosion potential of water. An increasingly negative index indicates the increasing possibility of corrosion. It is considered sound engineering practice to maintain a slightly positive Langelier Index. The Langelier Index for Brantford is consistently positive.

As part of the treatment plant process Sodium Silicofluoride is added to the treated water (Table 3). Where fluoridation is practised, the Fluoride concentration recommended in the ODWO is 1.2 mg/L, plus or minus 0.2 mg/L. Maintenance of this level was not achieved in more than half of the treated and distributed waters. According to Table 3, sodium silicofluoride was not added

at the time of sampling in August.

Turbidity in water is caused by the presence of suspended matter such as clay, silt, colloidal particles, plankton and other microscopic organisms. The most important potential health effect of Turbidity is its interference with disinfection in the treatment plant and the maintenance of a chlorine residual. The ODWO of 1 Formazin Turbidity Unit (FTU) is only applicable to treated water leaving the plant.

Metals

The results reported for the Metal scan were below any applicable health related ODWOs.

The levels of Iron, Zinc and Manganese are lower in the treated water as compared to the raw. This is a result of the treatment process, the addition of alum as a coagulant to the raw water and the resulting coagulation/settling process has been shown to reduce the levels of most metals.

Elevated levels of Copper, Lead and Zinc were detected in the standing samples as compared to the free flow distribution samples, indicating that small quantities of these metals were leached from the household plumbing as the water stood overnight. Although the Langelier Index indicates minimal potential for corrosion some metals will be leached in standing samples in most supplies.

The Beryllium value of .21 ug/L in the November treated water sample and .22 ug/L in the December Site 2 water sample is marginally greater than the USSR Maximum Permissible Concentration of .20 ug/L for Beryllium in drinking water.

At present, there is no evidence that Aluminum is physiologically harmful and no health limit for drinking water has been specified. The measure of residual Aluminum in the treated water is important to indicate the efficiency of the treatment process. The ODWOs indicate that a useful guideline is to maintain a residual below 100 ug/L as Al in the water leaving the plant to avoid problems in the distribution system. Aluminum values exceeded the ODWO operational guideline four times in the treated water.

Organic

Chloroaromatics

The results of the Chloroaromatics group showed that one parameter was detected:

Hexachloroethane

Hexachloroethane was detected at 11.0 ng/L in the March Site 1 water. The United States Environmental Protection Agency (EPA) has set an Ambient Water Quality (AWQ) guideline of 1900 ng/L. AWQ guidelines are designed to ensure that surface water, used as a

source of drinking water and from which fish are consumed, does not contain substances at levels that would be hazardous to human health. Since both water and fish consumption are considered, AWQ guidelines are usually more stringent than any corresponding drinking water guideline. The positive occurrence was well below the AWQ guideline. Hexachlorethane was also was detected at trace levels, once in the treated water, once in the Site 1 water and twice in the Site 2 water.

Review of other supplies on DWSP, would indicate that certain Chloroaromatics appear more frequently in the treated water than in the raw and almost always at trace levels. These occurrences could possibly be due to a reaction of chlorine with organics present in the water or in the distribution system.

Chlorophenols

Results of the chlorophenol scan show that one chlorophenol was detected:

Pentachlorophenol

Pentachlorophenol was detected at a trace level in one of the two raw water samples analyzed for chlorophenols.

Pesticides and PCB (Polychlorinated Biphenyl)

Results of the Pesticides and PCB scan show that no PCBs were detected and that three pesticides were detected:

Alpha BHC

Lindane

Atrazine

There are several isomers of BHC (Benzene Hexachloride); gamma BHC is the active ingredient of the pesticide Lindane, while alpha BHC is the isomer most predominantly found in surface waters of the Great Lakes basin as indicated in results from other water supplies on DWSP.

Alpha BHC was detected at trace levels, twice in the raw water, twice in the treated water, five times in the Site 1 water and six times in the Site 2 water.

Lindane was detected at trace levels, nine times in the raw water, seven times in the treated water, nine times in the Site 1 water and ten times in the Site 2 water. A positive value of 13 ng/L was detected in the August Site 1 water. This value was below the ODWO Maximum Acceptable Concentration (MAC) of 4000 ng/L.

Atrazine was detected at 520 ng/L in the October treated water sample. This is below Health and Welfare Canada's MAC of 6000 ng/L for Atrazine in drinking water. Atrazine was detected at trace levels, five times in the raw water and treated water, six times in the Site 1 water and six times in the Site 2 water.

Specific Pesticides

Within the Specific Pesticide scan one pesticide was detected:

Diazinon

Diazinon was detected at trace levels, in the one of the two raw water samples and one of the treated water samples analyzed for specific pesticides.

Phenolics

The maximum desirable concentration of phenolic substances in drinking water is 2.0 ug/L. This limit has been set primarily to prevent the occurrence of undesirable tastes and odours, particularly in chlorinated water. Phenolics were found at quantifiable levels 6 times in the raw water (1.6 ug/L to 3.8 ug/L) and 8 times in the treated water (1.0 ug/L to 4.0 ug/L). Phenolics were detected at trace levels, three times in the raw water and twice in the treated water. Phenolic compounds are present in the aquatic environment as a result of natural and/or industrial processes.

Polynuclear Aromatic Hydrocarbons (PAH)

The results of the PAH scan showed that five PAH's were detected:

Benzo(A) Anthracene

Benzo(B) Fluoranthene

Benzo(K) Fluoranthene

Benzo(A) Pyrene

Coronene

Benzo(A) Anthracene, Benzo(B) Fluoranthene, Benzo(A) Pyrene and Coronene were all detected at a trace level once in the raw water.

Benzo(K) Fluoranthene was detected at trace levels, twice in the raw water.

PAHs were not detected in any treated water samples. PAHs have a close association with suspended solids and removal of turbidity by conventional treatment will achieve minimum PAH levels.

Volatiles

Within the Volatile scan seven parameters, other than Trihalomethanes(THMs), were detected:

Toluene
Ethylbenzene
Styrene
1,2-Dichloroethane
1,1,1-Trichloroethane
Carbon Tetrachloride
Tetrachloroethylene

Toluene was detected at trace levels, twice in the treated water, four times in the Site 1 water and Site 2 water. The detection of toluene at low, trace levels is a laboratory artifact derived from

the analytical methodology. The purge-and-trap analytical technique depends on the purging of the volatile organics in the water sample with helium gas onto a Tenax trapping column. The volatile materials are subsequently thermally desorbed, separated and quantified. Tenax, a toluene-like polymeric material, tends to decompose sporadically upon heating into toluene and other aromatic componenets (ethylbenzene and xylene) giving instrument blanks in the order of 0.05 ug/L.

The detected trace levels of Styrene are also considered to be laboratory artifacts due to the outgassing of monomeric styrene from the polystyrene shipping containers. The sporadic background levels from this source are in the order of 0.05 ug/L.

Ethylbenzene was detected at trace levels, five times in the treated water, six times in the Site 1 water and once in the Site 3 water.

The volatiles listed above are typically found on an occasional basis at other water supplies included on the DWSP, usually at trace levels.

1,2-Dichloroethane was detected at a trace level, once in the Site 1 water.

1,1,1-Trichloroethane was detected at trace levels, twice in the

raw water and once in the treated water.

Carbon Tetrachloride was detected at trace levels, twice in the treated water, once in the Site 1 water and Site 2 water.

Tetrachloroethylene (T-Chloroethylene) was detected at trace levels, three times in the treated water, four times in the Site 1 and Site 2 water.

THMs are acknowledged to be produced during the water treatment process and will always occur in chlorinated surface waters. THMs are comprised mainly of Chloroform, Chlorodibromomethane and Dichlorobromomethane with Bromoform occurring occasionally. Results are reported for the individual compounds as well as for total THMs.

Chloroform, Chlorodibromomethane, Dichlorobromomethane and Total THMs were always detected in treated water. Bromoform was not detected. All Total THM occurrences, ranging from 101.7 to 205.8 ug/L, were below the ODWO of 350 ug/L. Total THMs were detected at trace levels, three times in the raw water.

CONCLUSIONS

The Brantford Water Treatment Plant for the sample year of 1988 produced good quality water at the plant; some microbiological

deterioration appeared to occur in the distribution system during the summer months despite maintenance of substantial chlorine residuals. Comparison with results of 1987 indicate that water quality has remained consistent. While the average Total THM level found was similar in 1987 and 1988, the maximum level found in 1988 was lower.

No health related guidelines were exceeded during 1988.

RECOMMENDATIONS

Three recommendations can be made:

1) Consideration should be given to reducing the frequency of sampling at this supply.

2) Fluoridation practises should be adjusted to maintain the recommended fluoride levels in the distributed water.

3) Three raw water samples contained low levels of THMs, the sampling location should be reassessed to ensure that it still meets DWSP specifications.

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TABLE 3

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP SAMPLE DAY CONDITIONS FOR 1988

	SAMPLE DAY CONDITIONS		TREATMENT CHEMICAL DOSAGES (MG/L)							
			PRE-CHLORINATION	TASTE & ODOUR	CHLORAMINATION	COAGULATION	COAGULATION AID	ACTIVATION	FLUORIDATION	DECHLORINATION
DATE	RETENTION TIME(HRS)	FLOW (1000M3)	CHLORINE	ACTIVATED CARBON POWDER	AMMONIUM ANHYDROUS	ALUM-LIQUID	SODIUM SILICATE	SULPHURIC ACID	SODIUM SILICOFLUORIDE	SULPHUR DIOXIDE
JAN 26	5.0	45.3	14.06	5.00	.42	40.00	10.00	3.84	1.00	.
FEB 23	6.0	41.9	11.88	.	.50	35.00	8.00	2.20	1.00	.17
MAR 29	5.5	40.8	12.00	5.00	.50	70.00	18.00	4.30	1.00	.
APR 26	5.0	51.2	7.70	5.00	.27	30.00	7.50	.	1.00	.
MAY 31	3.2	68.0	9.42	.	.50	35.00	7.50	2.80	1.00	.
JUN 28	4.0	67.4	10.36	.	.51	27.50	7.00	2.60	1.00	.18
JUL 26	5.0	42.3	11.15	5.00	.48	30.00	7.00	2.10	1.00	.
AUG 30	4.0	51.8	7.53	.	.46	35.00	7.50	3.40	.	.04
SEP 28	4.0	51.3	7.35	.	.48	30.00	7.00	1.70	1.00	.25
OCT 25	4.5	44.5	7.65	.	.52	35.00	6.50	2.00	1.00	.13
NOV 29	5.0	42.7	8.45	.	.50	35.00	7.50	4.60	1.00	.
DEC 20	4.0	43.0	11.57	.	.41	25.00	5.00	2.20	1.00	.

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	RAW			TREATED			SITE 1			SITE 2		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
BACTERIOLOGICAL	FECAL COLIFORM MF	12	12	0	.	.	.	.	.	.	.	.	.
	STANDRD PLATE CNT MF	4	4	0	11	8	0	12	10	0	10	9	0
	P/A BOTTLE	.	.	.	6	0	0	7	0	0	7	0	0
	TOTAL COLIFORM MF	12	11	0	11	0	0	12	2	0	12	0	0
	T COLIFORM BCKGRD MF	12	12	0	11	3	0	12	3	0	12	4	0
*TOTAL SCAN BACTERIOLOGICAL		40	39	0	39	11	0	43	15	0	41	13	0
*TOTAL GROUP BACTERIOLOGICAL		40	39	0	39	11	0	43	15	0	41	13	0
CHEMISTRY (FLD)	FLD CHLORINE (COMB)	.	.	.	12	12	0	24	24	0	24	24	0
	FLD CHLORINE FREE	.	.	.	8	8	0	11	11	0	6	6	0
	FLD CHLORINE (TOTAL)	.	.	.	12	12	0	24	24	0	24	24	0
	FLD PH	12	12	0	12	12	0	24	24	0	24	24	0
	FLD TEMPERATURE	12	12	0	12	12	0	24	24	0	24	24	0
	FLD TURBIDITY	12	12	0	12	12	0	24	24	0	24	24	0
*TOTAL SCAN CHEMISTRY (FLD)		36	36	0	68	68	0	131	131	0	126	126	0
CHEMISTRY (LAB)	ALKALINITY	12	12	0	12	12	0	24	24	0	24	24	0
	CALCIUM	12	12	0	12	12	0	24	24	0	24	24	0
	CYANIDE	12	0	0	12	0	0	12	1	0	12	2	2
	CHLORIDE	12	12	0	12	12	0	24	24	0	24	24	0
	COLOUR	12	12	0	12	12	0	24	24	0	24	24	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD

SUMMARY TABLE OF RESULTS (1988)

		SITE											
		RAW			TREATED			SITE 1			SITE 2		
SCAN	PARAMETER	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
CHEMISTRY (LAB)	CONDUCTIVITY	12	12	0	12	12	0	24	24	0	24	24	0
	FLUORIDE	12	12	0	12	12	0	24	24	0	24	24	0
	HARDNESS	12	12	0	12	12	0	24	24	0	24	24	0
	IONCAL	12	6	0	12	6	0	24	12	0	24	12	0
	LANGELIERS INDEX	12	12	0	12	12	0	24	24	0	24	24	0
	MAGNESIUM	12	12	0	12	12	0	24	24	0	24	24	0
	SODIUM	12	12	0	12	12	0	24	24	0	24	24	0
	AMMONIUM TOTAL	12	9	3	12	12	0	24	23	1	24	24	0
	NITRITE	12	12	0	12	3	9	24	20	4	24	22	2
	TOTAL NITRATES	12	12	0	12	12	0	24	24	0	24	24	0
	NITROGEN TOT KJELD	12	12	0	12	12	0	24	24	0	24	24	0
	PH	12	12	0	12	12	0	24	24	0	24	24	0
	PHOSPHORUS FIL REACT	12	12	0	12	10	2	.	.	.	.	.	.
	PHOSPHORUS TOTAL	12	12	0	12	9	3	.	.	.	.	.	.
	SULPHATE	6	6	0	6	6	0	12	12	0	12	12	0
	TURBIDITY	11	11	0	11	11	0	22	22	0	22	22	0
*TOTAL SCAN CHEMISTRY (LAB)		245	224	3	245	[illegible]	14	430	402	5	430	406	4
METALS	SILVER	12	0	4	12	0	5	24	0	21	24	2	19
	ALUMINUM	12	12	0	12	12	0	24	24	0	24	24	0
	ARSENIC	12	3	7	12	2	6	24	4	13	24	5	15
	BARIUM	12	12	0	12	12	0	24	24	0	24	24	0
	BORON	12	11	1	12	11	1	24	22	2	24	24	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD

SUMMARY TABLE OF RESULTS (1968)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE
METALS	BERYLLIUM	12	0	8	12	0	7	24	0	18	24	0	16
	CADMIUM	12	0	10	12	0	5	24	0	9	24	0	14
	COBALT	12	0	12	12	0	12	24	0	24	24	1	23
	CHROMIUM	12	11	1	12	8	4	24	12	12	24	12	12
	COPPER	12	12	0	12	12	0	24	24	0	24	24	0
	IRON	12	11	0	12	0	9	24	0	23	24	0	24
	MERCURY	12	4	0	11	5	1	12	6	0	12	4	0
	MANGANESE	12	11	1	12	12	0	24	24	0	24	24	0
	MOLYBDENUM	12	11	1	12	12	0	24	24	0	24	24	0
	NICKEL	12	7	5	12	6	5	24	15	7	24	17	5
	LEAD	12	11	1	12	3	9	24	24	0	24	24	0
	ANTIMONY	12	8	4	12	8	4	24	14	10	24	19	5
	SELENIUM	12	0	11	12	0	12	24	0	23	24	0	24
	STRONTIUM	12	12	0	12	12	0	24	24	0	24	24	0
	TITANIUM	12	12	0	12	12	0	24	24	0	24	24	0
	THALLIUM	12	0	3	12	0	3	24	0	7	24	0	9
	URANIUM	12	12	0	12	12	0	24	24	0	24	24	0
	VANADIUM	12	10	2	12	12	0	24	24	0	24	24	0
	ZINC	12	12	0	12	12	0	24	24	0	24	24	0
*TOTAL SCAN METALS		288	182	71	287	163	83	564	337	169	564	348	166
*TOTAL GROUP INORGANIC & PHYSICAL		569	442	74	600	444	97	1125	870	174	1120	880	170
CHLOROAROMATICS	HEXACHLOROBUTADIENE	11	0	0	11	0	0	12	0	0	11	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD

SUMMARY TABLE OF RESULTS (1988)

		SITE											
		RAW			TREATED			SITE 1			SITE 2		
SCAN	PARAMETER	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
CHLOROAROMATICS	123 TRICHLOROBENZENE	11	0	0	11	0	0	12	0	0	11	0	0
	1234 T-CHLOROBENZENE	11	0	0	11	0	0	12	0	0	11	0	0
	1235 T-CHLOROBENZENE	11	0	0	11	0	0	12	0	0	11	0	0
	124 TRICHLOROBENZENE	11	0	0	11	0	0	12	0	0	11	0	0
	1245 T-CHLOROBENZENE	11	0	0	11	0	0	12	0	0	11	0	0
	135 TRICHLOROBENZENE	11	0	0	11	0	0	12	0	0	11	0	0
	HCB	11	0	0	11	0	0	12	0	0	11	0	0
	HEXACHLOROETHANE	11	0	0	11	0	1	12	1	1	11	0	2
	OCTACHLOROSTYRENE	11	0	0	11	0	0	12	0	0	11	0	0
	PENTACHLOROBENZENE	11	0	0	11	0	0	12	0	0	11	0	0
	236 TRICHLOROTOLUENE	11	0	0	11	0	0	12	0	0	11	0	0
	245 TRICHLOROTOLUENE	11	0	0	11	0	0	12	0	0	11	0	0
	26A TRICHLOROTOLUENE	11	0	0	11	0	0	12	0	0	11	0	0
*TOTAL SCAN CHLOROAROMATICS		154	0	0	154	0	1	168	1	1	154	0	2
CHLOROPHENOLS	234 TRICHLOROPHENOL	2	0	0	2	0	0	.	.	.	.	.	.
	2345 T-CHLOROPHENOL	2	0	0	2	0	0	.	.	.	.	.	.
	2356 T-CHLOROPHENOL	2	0	0	2	0	0	.	.	.	.	.	.
	245-TRICHLOROPHENOL	2	0	0	2	0	0	.	.	.	.	.	.
	246-TRICHLOROPHENOL	2	0	0	2	0	0	.	.	.	.	.	.
	PENTACHLOROPHENOL	2	0	1	2	0	0	.	.	.	.	.	.
*TOTAL SCAN CHLOROPHENOLS		12	0	1	12	0	0	0	0	0	0	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD

SUMMARY TABLE OF RESULTS (1988)

		SITE											
		RAW			TREATED			SITE 1			SITE 2		
SCAN	PARAMETER	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
PAH	PHENANTHRENE	12	0	0	12	0	0	.	.	.	.	.	.
	ANTHRACENE	12	0	0	12	0	0	.	.	.	.	.	.
	FLUORANTHENE	12	0	0	12	0	0	.	.	.	.	.	.
	PYRENE	12	0	0	12	0	0	.	.	.	.	.	.
	BENZO(A)ANTHRACENE	12	0	1	12	0	0	.	.	.	.	.	.
	CHRYSENE	12	0	0	12	0	0	.	.	.	.	.	.
	DIMETH. BENZ(A)ANTHR	12	0	0	12	0	0	.	.	.	.	.	.
	BENZO(E) PYRENE	12	0	0	12	0	0	.	.	.	.	.	.
	BENZO(J) FLUORANTHEN	0	0	0	0	0	0	.	.	.	.	.	.
	BENZO(B) FLUORANTHEN	12	0	1	12	0	0	.	.	.	.	.	.
	PERYLENE	12	0	0	12	0	0	.	.	.	.	.	.
	BENZO(K) FLUORANTHEN	12	0	2	12	0	0	.	.	.	.	.	.
	BENZO(A) PYRENE	12	0	1	12	0	0	.	.	.	.	.	.
	BENZO(G,H,I) PERYLEN	12	0	0	12	0	0	.	.	.	.	.	.
	DIBENZO(A,H) ANTHRAC	12	0	0	12	0	0	.	.	.	.	.	.
	INDENO(1,2,3-C,D) PY	12	0	0	12	0	0	.	.	.	.	.	.
	BENZO(B) CHRYSENE	12	0	0	12	0	0	.	.	.	.	.	.
	ANTHANTHRENE	0	0	0	0	0	0	.	.	.	.	.	.
	CORONENE	12	0	1	12	0	0	.	.	.	.	.	.
*TOTAL SCAN PAH		204	0	6	204	0	0	0	0	0	0	0	0
PESTICIDES & PCB	ALDRIN	11	0	0	11	0	0	12	0	0	11	0	0
	ALPHA BHC	11	0	2	11	0	2	12	0	5	11	0	6

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE
PESTICIDES & PCB	BETA BHC	11	0	0	11	0	0	12	0	0	11	0	0
	LINDANE	11	0	9	11	0	7	12	1	9	11	0	10
	ALPHA CHLORDANE	11	0	0	11	0	0	12	0	0	11	0	0
	GAMMA CHLORDANE	11	0	0	11	0	0	12	0	0	11	0	0
	DIELDRIN	11	0	0	11	0	0	12	0	0	11	0	0
	METHOXYCHLOR	11	0	0	11	0	0	12	0	0	11	0	0
	ENDOSULFAN 1	11	0	0	11	0	0	12	0	0	11	0	0
	ENDOSULFAN II	11	0	0	11	0	0	12	0	0	11	0	0
	ENDRIN	11	0	0	11	0	0	12	0	0	11	0	0
	ENDOSULFAN SULPHATE	11	0	0	11	0	0	12	0	0	11	0	0
	HEPTACHLOR EPOXIDE	11	0	0	11	0	0	12	0	0	11	0	0
	HEPTACHLOR	11	0	0	11	0	0	12	0	0	11	0	0
	MIREX	11	0	0	11	0	0	12	0	0	11	0	0
	OXYCHLORDANE	11	0	0	11	0	0	12	0	0	11	0	0
	OPDDT	11	0	0	11	0	0	12	0	0	11	0	0
	PCB	11	0	0	11	0	0	12	0	0	11	0	0
	DDD	11	0	0	11	0	0	12	0	0	11	0	0
	PPDDE	11	0	0	11	0	0	12	0	0	11	0	0
	PPDDT	11	0	0	11	0	0	12	0	0	11	0	0
	AMETRINE	11	0	0	12	0	0	12	0	0	12	0	0
	ATRAZINE	11	0	5	12	1	5	12	0	6	12	0	6
	ATRATONE	11	0	0	12	0	0	12	0	0	12	0	0
	CYANAZINE	11	0	0	12	0	0	12	0	0	12	0	0
	DES ETHYL ATRAZINE	6	0	0	6	0	0	6	0	0	6	0	0
	DES ETHYL SIMAZINE	6	0	0	6	0	0	6	0	0	6	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD

SUMMARY TABLE OF RESULTS (1988)

		SITE											
		RAW			TREATED			SITE 1			SITE 2		
SCAN	PARAMETER	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
PESTICIDES & PCB	PROMETONE	11	0	0	12	0	0	12	0	0	12	0	0
	PROPAZINE	11	0	0	12	0	0	12	0	0	12	0	0
	PROMETRYNE	11	0	0	12	0	0	12	0	0	12	0	0
	METRIBUZIN	11	0	0	12	0	0	12	0	0	12	0	0
	SIMAZINE	11	0	0	12	0	0	12	0	0	12	0	0
	ALACHLOR	11	0	0	12	0	0	12	0	0	12	0	0
	METOLACHLOR	11	0	0	12	0	0	12	0	0	12	0	0
*TOTAL SCAN PESTICIDES & PCB		364	0	16	375	1	14	396	1	20	375	0	22
PHENOLICS	PHENOLICS	12	7	3	12	8	2	.	.	.	.	.	.
*TOTAL SCAN PHENOLICS		12	7	3	12	8	2	0	0	0	0	0	0
SPECIFIC PESTICIDES	TOXAPHENE	1	0	0	1	0	0	1	0	0	1	0	0
	2,4,5-T	2	0	0	2	0	0	.	.	.	.	.	.
	2,4-D	2	0	0	2	0	0	.	.	.	.	.	.
	2,4-DB	2	0	0	2	0	0	.	.	.	.	.	.
	2,4 D PROPIONIC ACID	2	0	0	2	0	0	.	.	.	.	.	.
	DICAMBA	2	0	0	2	0	0	.	.	.	.	.	.
	PICHLORAM	0	0	0	0	0	0	.	.	.	.	.	.
	SILVEX	2	0	0	2	0	0	.	.	.	.	.	.
	DIAZINON	2	0	1	2	0	1	.	.	.	.	.	.

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	SITE	RAW			TREATED			SITE 1			SITE 2		
			TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
SPECIFIC PESTICIDES	DICHLOROVOS		2	0	0	2	0	0	.	.	.	.	.	.
	CHLORPYRIFOS		2	0	0	2	0	0	.	.	.	.	.	.
	ETHION		2	0	0	2	0	0	.	.	.	.	.	.
	AZINPHOS-METHYL		0	0	0	0	0	0	.	.	.	.	.	.
	MALATHION		2	0	0	2	0	0	.	.	.	.	.	.
	MEVINPHOS		2	0	0	2	0	0	.	.	.	.	.	.
	METHYL PARATHION		2	0	0	2	0	0	.	.	.	.	.	.
	METHYLTRITHION		2	0	0	2	0	0	.	.	.	.	.	.
	PARATHION		2	0	0	2	0	0	.	.	.	.	.	.
	PHORATE		2	0	0	2	0	0	.	.	.	.	.	.
	RELDAN		2	0	0	2	0	0	.	.	.	.	.	.
	RONNEL		2	0	0	2	0	0	.	.	.	.	.	.
	AMINOCARB		0	0	0	0	0	0	.	.	.	.	.	.
	BENOMYL		2	0	0	2	0	0	.	.	.	.	.	.
	BUX		2	0	0	2	0	0	.	.	.	.	.	.
	CARBOFURAN		2	0	0	2	0	0	.	.	.	.	.	.
	CICP		2	0	0	2	0	0	.	.	.	.	.	.
	DIALLATE		2	0	0	2	0	0	.	.	.	.	.	.
	EPTAM		2	0	0	2	0	0	.	.	.	.	.	.
	IPC		2	0	0	2	0	0	.	.	.	.	.	.
	PROPOXUR		2	0	0	2	0	0	.	.	.	.	.	.
	CARBARYL		2	0	0	2	0	0	.	.	.	.	.	.
	BUTYLATE		2	0	0	2	0	0	.	.	.	.	.	.
*TOTAL SCAN SPECIFIC PESTICIDES			57	0	1	57	0	1	1	0	0	1	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE
VOLATILES	BENZENE	10	0	0	10	0	0	10	0	0	10	0	0
	TOLUENE	10	0	0	10	0	2	10	0	4	10	0	4
	ETHYLBENZENE	10	0	0	9	0	5	10	0	6	10	0	1
	P-XYLENE	10	0	0	10	0	0	10	0	0	10	0	0
	M-XYLENE	10	0	0	10	0	0	10	0	0	10	0	0
	O-XYLENE	10	0	0	10	0	0	10	0	0	10	0	0
	STYRENE	4	0	2	4	0	3	4	0	2	4	0	2
	1,1 DICHLOROETHYLENE	10	0	0	10	0	0	10	0	0	10	0	0
	METHYLENE CHLORIDE	10	0	0	10	0	0	10	0	0	10	0	0
	T1,2DICHLOROETHYLENE	10	0	0	10	0	0	10	0	0	10	0	0
	1,1 DICHLOROETHANE	10	0	0	10	0	0	10	0	0	10	0	0
	CHLOROFORM	9	0	6	9	9	0	9	9	0	9	9	0
	111, TRICHLOROETHANE	10	0	2	10	0	1	10	0	0	10	0	0
	1,2 DICHLOROETHANE	10	0	0	10	0	0	10	0	1	10	0	0
	CARBON TETRACHLORIDE	10	0	0	10	0	2	10	0	1	10	0	1
	1,2 DICHLOROPROPANE	10	0	0	10	0	0	10	0	0	10	0	0
	TRICHLOROETHYLENE	10	0	0	10	0	0	10	0	0	10	0	0
	DICHLOROBROMOMETHANE	10	0	2	9	9	0	9	9	0	9	9	0
	112 TRICHLOROETHANE	10	0	0	10	0	0	10	0	0	10	0	0
	CHLORODIBROMOMETHANE	10	0	0	9	8	1	9	8	1	9	8	1
	T-CHLOROETHYLENE	10	0	0	9	0	3	10	0	4	9	0	4
	BROMOFORM	10	0	0	10	0	0	10	0	0	10	0	0
	1122 T-CHLOROETHANE	10	0	0	10	0	0	10	0	0	10	0	0
	CHLOROBENZENE	10	0	0	10	0	0	10	0	0	10	0	0
	1,4 DICHLOROBENZENE	10	0	0	10	0	0	10	0	0	10	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE
VOLATILES	1,3 DICHLOROBENZENE	10	0	0	10	0	0	10	0	0	10	0	0
	1,2 DICHLOROBENZENE	10	0	0	10	0	0	10	0	0	10	0	0
	TRIFLUOROCHLOROTOLUE	3	0	0	3	0	0	3	0	0	3	0	0
	ETHLYENE DIBROMIDE	10	0	0	10	0	0	10	0	0	10	0	0
	TOTL TRIHALOMETHANES	10	0	3	9	9	0	9	9	0	9	9	0
*TOTAL SCAN VOLATILES		286	0	15	281	35	17	283	35	19	282	35	13
*TOTAL GROUP ORGANIC		1089	7	42	1095	44	35	848	37	40	812	35	37
TOTAL		1698	488	116	1734	499	132	2016	922	214	1973	928	207

KEY TO TABLE 5 and 6

A ONTARIO DRINKING WATER OBJECTIVES (ODWO)
1. Maximum Acceptable Concentration (MAC)
1+. MAC for Total Trihalomethanes
1*. MAC for Bacteriological Analyses
Poor water quality is indicated when :
- total coliform counts > 0 < 5
- P/A Bottle Test is present after 48 hours
- Aeromonas organisms are detected in more than 25% of samples in a single submission or in successive submissions from the same sampling site
- Pseudomonas Aeruginosa, Staphylococcus Aureus and members of the Fecal Streptococcus group should not be detected in any sample
- Standard Plate Count should not exceed 500 organisms per ml at 35 ^{0}C within 48 hours
2. Interim Maximum Acceptable Concentration (IMAC)
3. Maximum Desirable Concentration (MDC)
4. Aesthetic or Recommended Operational Guideline
- hardness levels between 80 and 100 mg/L as calcium carbonate are considered to provide an acceptable balance between corrosion and incrustation, water supplies with a hardness >200 mg/L are considered poor and those in excess of 500 mg/L are unacceptable.

B HEALTH & WELFARE CANADA (H&W)
1. Maximum Acceptable Concentration (MAC)
2. Proposed MAC
3. Interim MAC
4. Aesthetic Objective (AO) (for xylenes, the AO is a total)

C WORLD HEALTH ORGANIZATION (WHO)
1. Guideline Value (GV)
2. Tentative GV
3. Aesthetic GV

D US ENVIRONMENTAL PROTECTION AGENCY (EPA)
1. Maximum Contaminant Level (MCL)
2. Suggested No-Adverse Effect Level (SNAEL)
3. Lifetime Health Advisory
4. EPA Ambient Water Quality Criteria

F EUROPEAN ECONOMIC COMMUNITY (EEC)
1. Health Related Guideline Level
2. Aesthetic Guideline Level
3. Maximum Admissable Concentration (MADC)

G CALIFORNIA STATE DEPARTMENT OF HEALTH-GUIDELINE VALUE

H USSR MAXIMUM PERMISSIBLE CONCENTRATION

I NEW YORK STATE AMBIENT WATER GUIDELINE

N/A NONE AVAILABLE

INTERPRETATION OF DATA

The interpretation of analytical results that are obtained from measurements near the limit of detection of the measurement process is subject to greater uncertainty than those at higher concentrations. The principle areas of concern relate to whether the substance has actually been detected, whether it has been properly identified, and whether it is an artifact of the measurement process. In other words, false positives can be caused by the instrumentation or the test procedures used, when in fact these compounds are not present in the sample.

There are several methods to treat data from such measurements:
1. Exclude the low-level data because of this uncertainty factor. However, studies of long-term environmental trends and modelling may be adversely affected by exclusion of such data.
2. Qualify these data so the user is aware of the greater uncertainty associated with their use.

For the Drinking Water Surveillance Program, measurements near the limit of detection of the measurement process are reported qualified by the code "<T". Results quantified by "W" indicate a zero measurement. These results are reported for purposes of modelling and long-term trend analysis and no significance should be attributed to a single determination of a substance below "T" (a single determination may well be a false positive). Repeat analysis or additional data are needed before it can be stated with certainty that the substance in question was truly present. On the other hand, it is less likely that repeated detection of a substance at or near the limit of detection at a specific location is solely due to an artifact in the measurement system, and more likely represents a true positive. However the average of such data is still only an estimate of the amount of substance present subject to the possible biases of the method used.

LABORATORY RESULTS, REMARK DESCRIPTIONS

.	No Sample Taken
BDL	Below Minimum Measurable Amount
<T	Greater Than Detection Limit But Not Confident (SEE INTERPRETATION OF RESULTS ABOVE)
>	Results Are Greater Than The Upper Limit
<=>	Approximate Result
!AW	No Data: Analysis Withdrawn
!CR	No Data: Could Not Confirm By Reanalysis
!CS	No Data: Contamination Suspected
!IL	No Data: Sample Incorrectly Labelled
!IS	No Data: Insufficient Sample
!LA	No Data: Laboratory Accident

!LD	No Data: Test Queued After Sample Discarded
!NA	No Data: No Authorization To Perform Reanalysis
!NP	No Data: No Procedure
!NR	No Data: Sample Not Received
!OP	No Data: Obscured Plate
!QU	No Data: Quality Control Unacceptable
!PE	No Data: Procedural Error - Sample Discarded
!PH	No Data: Sample pH Outside Valid Range
!RE	No Data: Received Empty
!RO	No Data: See Attached Report (no numeric results)
!SM	No Data: Sample Missing
!SS	No Data: Send Separate Sample Properly Preserved
!UI	No Data: Indeterminant Interference
!TX	No Data: Time Expired
A3C	Approximate, Total Count Exceeded 300 Colonies
APL	Additional Peak, Large, Not Priority Pollutant
APS	Additional Peak, Less Than, Not Priority Pollutant
CIC	Possible Contamination, Improper Cap
CRO	Calculated Result Only
PPS	Test Performed On Preserved Sample
RMP	P and M-Xylene Not Separated
RRV	Rerun Verification
RVU	Reported Value Unusual
SPS	Several Peaks, Small, Not Priority Pollutant
UAL	Unreliable: Sample Age Exceeds Normal Limit
UCR	Unreliable: Could Not Confirm By Reanalysis
UCS	Unreliable: Contamination Suspected
UIN	Unreliable: Indeterminant Interference
XP	Positive After X Number of Hours
T# (T06)	Result Taken After # Hours

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
BACTERIOLOGICAL						
FECAL COLIFORM MF (CT/100ML)		DET'N LIMIT = 0		GUIDELINE = 0 (A1)		
JAN	4	.	.	.	.	.
FEB	20	.	.	.	.	.
MAR	46	.	.	.	.	.
APR	2	.	.	.	.	.
MAY	4	.	.	.	.	.
JUN	11	.	.	.	.	.
JUL	206	.	.	.	.	.
AUG	48	.	.	.	.	.
SEP	7	.	.	.	.	.
OCT	13 T48	.	.	.	.	.
NOV	50 T24	.	.	.	.	.
DEC	48 T24	.	.	.	.	.
STANDRD PLATE CNT MF (CT/ML)		DET'N LIMIT = 0		GUIDELINE = 500/ML (A1)		
JAN	TOP	38	.	19	.	27
FEB	900	3	.	7	.	3
MAR	TOP	12	.	15	.	17
APR	550	200	.	8	.	52
MAY	TOP	2400 >	.	270	.	TOP
JUN	2400 >	.	.	15	.	0
JUL	2400 >	320	.	460	.	2400 >
AUG	.	380	.	76	.	2400 >
SEP	.	3 <=>	.	137 T48	.	2400 >
OCT	.	1 <=>	.	7 <=>	.	1520 T48
NOV	.	10 T24	.	8 <=>	.	2400 >
DEC	.	3 <=>	.	11 T24	.	TLA
P/A BOTTLE ( )		DET'N LIMIT = 0		GUIDELINE = 0 (A1*)		
JAN	.	0	.	0	.	0
FEB	.	0	.	0	.	0
MAR	.	0	.	0	.	0
APR	.	0	.	0	.	0
MAY	.	0	.	0	.	0
JUN	.	.	.	0	.	0
JUL	.	0	.	0	.	0
TOTAL COLIFORM MF (CT/100ML)		DET'N LIMIT = 0		GUIDELINE = 5/100ML(A1)		
JAN	200	0	.	0	.	0
FEB	190	0	.	0	.	0
MAR	4300 A3C	0	.	0	.	0

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

	WATER TREATMENT PLANT				DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2			
			STANDING	FREE FLOW	STANDING	FREE FLOW		
APR	100 A3C	0	.	0	.	0		
MAY	12 A3C	0	.	0	.	0		
JUN	14 A3C	.	.	0	.	0		
JUL	1600 A3C	0	.	0	.	0		
AUG	1500 A3C	0	.	0	.	0		
SEP	160 <=>	0	.	9 T48	.	0 A3C		
OCT	300 A3C	0 T48	.	1 T48	.	0 T48		
NOV	660 A3C	0 T24	.	0 T24	.	0 T24		
DEC	1500 T24	0 T24	.	BDL	.	0 T24		
T COLIFORM BCKGRD MF (CT/100ML)		DET'N LIMIT = 0		GUIDELINE = N/A				
JAN	1900	0	.	0	.	8		
FEB	950	0	.	0	.	0		
MAR	32000	0	.	0	.	0		
APR	3200	800	.	59	.	0		
MAY	1900	0	.	0	.	0		
JUN	4800 >	.	.	0	.	0		
JUL	00000	86	.	4	.	81		
AUG	70000	2400 >	.	53	.	139		
SEP	11600 A3C	0	.	0 T48	.	1500 A3C		
OCT	19400 A3C	0 T48	.	0 T48	.	0 T48		
NOV	13400 T24	0 T24	.	0 T24	.	0 T24		
DEC	24000 T24	0 T24	.	BDL	.	0 T24		

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
CHEMISTRY (FLD)						
FLD CHLORINE (COMB) ( )			**DET'N LIMIT = N/A**		**GUIDELINE = N/A**	
JAN	.	1.100	.700	1.100	.300	.300
FEB	.	1.300	1.200	1.200	.300	.500
MAR	.	1.350	.900	1.000	.350	.500
APR	.	.900	.250	.500	.800	.900
MAY	.	1.200	.900	.800	.400	.600
JUN	.	1.300	1.000	1.000	.200	.500
JUL	.	1.300	.500	.650	.250	.300
AUG	.	1.200	.500	.500	.200	.400
SEP	.	1.500	.700	.700	.200	.550
OCT	.	1.400	.900	.900	.200	.500
NOV	.	1.300	.600	.800	.100	.300
DEC	.	1.000	.500	.900	.200	.450
FLD CHLORINE FREE ( )			**DET'N LIMIT = N/A**		**GUIDELINE = N/A**	
JAN	.	.100	.	.100	.	.100
FEB	.	.100	.200	.200	.	.
MAR	.	.	.100	.100	.	.
APR	.	.100	.	.	.100	.100
MAY	.	.100	.	.100	.	.100
JUN	.	.	.	.100	.	.
JUL	.	.100	.	.100	.100	.100
AUG	.	.100	.	.100	.	.
SEP	.	.	.	.200	.	.
OCT	.	.100	.	.	.	.
NOV	.	.	.	.100	.	.
DEC	.	.100	.	.	.	.
FLD CHLORINE (TOTAL) ( )			**DET'N LIMIT = N/A**		**GUIDELINE = N/A**	
JAN	.	1.200	.700	1.200	.300	.400
FEB	.	1.400	1.400	1.400	.300	.500
MAR	.	1.350	1.000	1.100	.350	.500
APR	.	1.000	.250	.500	.900	1.000
MAY	.	1.300	.900	.900	.400	.700
JUN	.	1.300	1.000	1.100	.200	.500
JUL	.	1.400	.500	.750	.350	.400
AUG	.	1.300	.500	.600	.200	.400
SEP	.	1.500	.700	.900	.200	.550
OCT	.	1.500	.900	.900	.200	.500
NOV	.	1.300	.600	.900	.100	.300
DEC	.	1.100	.500	.900	.200	.450

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

	WATER TREATMENT PLANT				DISTRIBUTION SYSTEM	
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
FLD PH (DIMNSLESS)			DET'N LIMIT = N/A		GUIDELINE = 6.5-8.5(A4)	
JAN	8.000	7.650	7.500	7.400	7.000	7.400
FEB	8.000	7.400	7.400	7.400	7.600	7.500
MAR	8.000	7.400	7.400	7.400	7.500	7.350
APR	8.150	7.500	7.500	7.700	7.600	7.600
MAY	7.900	7.800	7.600	7.600	7.500	7.600
JUN	8.200	7.300	7.500	7.400	7.400	7.400
JUL	8.000	7.500	7.600	7.500	7.600	7.500
AUG	8.000	7.800	7.600	7.800	7.700	7.600
SEP	8.200	7.600	7.500	7.500	7.500	7.500
OCT	8.000	7.500	7.700	7.500	7.600	7.500
NOV	7.700	7.400	7.600	7.600	7.500	7.500
DEC	8.000	7.600	7.600	7.500	7.500	7.500
FLD TEMPERATURE (DEG.C)			DET'N LIMIT = N/A		GUIDELINE = 15 (A1)	
JAN	2.000	3.000	10.000	4.000	16.000	5.500
FEB	3.000	3.000	8.000	4.000	9.000	4.000
MAR	4.500	5.500	9.000	5.000	9.500	5.000
APR	9.000	9.500	13.000	10.000	19.000	9.500
MAY	24.000	24.000	18.000	17.500	18.000	18.000
JUN	21.000	21.500	19.000	21.000	21.000	21.000
JUL	22.500	23.500	22.000	22.500	21.000	22.500
AUG	21.000	20.000	20.000	20.000	20.000	20.000
SEP	18.000	17.500	18.000	18.000	19.500	19.000
OCT	13.000	12.500	14.000	12.000	22.000	12.000
NOV	7.000	7.000	13.000	9.000	20.000	11.000
DEC	3.000	4.000	9.000	4.000	19.000	9.000
FLD TURBIDITY (FTU)			DET'N LIMIT = N/A		GUIDELINE = 1.0 (A1)	
JAN	8.800	.150	.610	.300	.240	.200
FEB	4.500	.440	.530	.640	.090	.100
MAR	50.000	.410	.820	.790	.150	.120
APR	3.400	.220	.180	.140	.180	.170
MAY	2.500	.160	.250	.290	.250	.420
JUN	13.000	.500	.260	.320	.230	.170
JUL	9.100	.170	.120	.190	.210	.170
AUG	25.000	.350	.270	.280	.200	.190
SEP	16.700	.170	.400	.130	.100	.120
OCT	8.400	.210	.200	.300	.110	.170
NOV	10.700	.160	.140	.250	.130	.110
DEC	2.900	.090	.090	.120	.110	.100

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
CHEMISTRY (LAB)						
ALKALINITY (MG/L)			DET'N LIMIT = .200		GUIDELINE = 30-500 (A4)	
JAN	193.100	175.700	177.800	176.500	159.200	158.100
FEB	224.200	204.000	195.400	195.900	196.600	197.600
MAR	157.800	140.000	145.800	148.400	147.700	143.000
APR	205.300	188.800	183.000	181.400	190.700	191.000
MAY	204.600	186.100	188.000	187.600	187.000	186.300
JUN	176.200	151.500	153.100	154.000	156.000	156.200
JUL	182.000	164.800	164.000	162.900	169.400	166.600
AUG	186.200	176.900	172.100	173.100	173.500	175.500
SEP	192.400	177.200	170.400	171.800	173.100	172.000
OCT	216.100	195.500	198.100	198.200	195.900	197.100
NOV	228.600	205.900	209.600	208.800	203.100	203.500
DEC	261.900	239.600	241.200	243.000	238.600	242.700
CALCIUM (MG/L)			DET'N LIMIT = .100		GUIDELINE = 100 (F2)	
JAN	75.400	82.800	82.800	81.200	78.200	77.000
FEB	89.600	91.800	87.400	88.000	90.000	89.400
MAR	55.400	63.800	65.000	66.400	68.000	65.600
APR	73.600	77.400	74.600	73.400	76.800	76.000
MAY	80.200	81.800	80.800	81.600	82.800	83.800
JUN	76.200	71.400	73.800	73.800	74.800	76.200
JUL	70.200	74.200	75.600	75.000	75.400	76.000
AUG	84.200	92.000	90.000	87.600	87.400	92.800
SEP	79.400	85.400	81.000	83.200	82.800	81.600
OCT	96.200	92.800	93.600	93.800	96.000	93.800
NOV	86.400	86.800	92.600	91.200	88.800	86.800
DEC	114.000	111.000	108.000	109.000	106.000	109.000
CYANIDE (MG/L)			DET'N LIMIT = 0.001		GUIDELINE = .200 (A1)	
JAN	BDL	BDL	.	BDL	.	.007
FEB	BDL	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	.009	.	.003 <T
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	BDL	.	.001
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	.002 <T
DEC	BDL	BDL	.	BDL	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE						
TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
CHLORIDE (MG/L)			DET'N LIMIT = .200		GUIDELINE = 250 (A3)	
JAN	59.700	71.600	76.200	76.000	69.800	67.800
FEB	111.000	121.000	130.000	133.000	99.600	102.000
MAR	20.400	33.400	32.800	32.500	48.600	43.900
APR	52.800	60.600	58.100	56.800	63.600	61.800
MAY	66.700	76.100	81.400	79.900	78.200	78.900
JUN	78.500	86.000	81.200	80.300	87.500	85.700
JUL	69.100	77.700	76.400	77.600	77.700	76.500
AUG	73.100	82.600	77.800	77.200	82.500	81.100
SEP	74.100	76.700	77.000	76.200	78.000	76.700
OCT	64.400	76.200	75.800	74.600	74.000	77.700
NOV	42.700	50.200	51.000	50.900	50.400	50.300
DEC	107.000	105.000	114.000	115.000	111.000	112.000
COLOUR (HZU)			DET'N LIMIT = .5		GUIDELINE = 5.0 (A3)	
JAN	30.000	7.500	7.000	6.000	11.500	9.500
FEB	17.500	4.500	4.500	4.000	5.000	4.500
MAR	25.000	6.000	8.000	7.500	7.500	7.000
APR	32.000	3.500	4.000	4.000	4.500	4.500
MAY	19.000	3.000	4.000	4.000	3.500	2.500
JUN	16.000	3.000	4.000	3.500	4.000	3.500
JUL	18.000	2.500	3.000	3.000	4.000	3.500
AUG	14.000	3.000	3.500	3.500	3.500	3.000
SEP	13.000	3.000	3.500	3.500	4.000	3.000
OCT	16.500	4.500	5.500	5.000	6.500	6.500
NOV	22.000	7.500	7.500	7.500	10.500	10.000
DEC	15.000	5.500	7.000	6.500	8.000	7.000
CONDUCTIVITY (UMHO/CM)			DET'N LIMIT = 1		GUIDELINE = 400 (F2)	
JAN	686	725	749	752	691	683
FEB	915	933	952	952	874	878
MAR	413	484	493	495	566	538
APR	684	704	688	690	721	719
MAY	762	787	807	805	800	802
JUN	799	808	799	805	826	819
JUL	744	780	775	768	787	781
AUG	793	837	818	812	837	839
SEP	812	820	819	817	827	825
OCT	796	832	831	833	828	839
NOV	707	729	737	731	722	725
DEC	1000	1003	1014	1020	1015	1023
FLUORIDE (MG/L)			DET'N LIMIT = .01		GUIDELINE = 2.400 (A1)	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
JAN	.120	.980	1.000	1.020	1.140	1.140
FEB	.140	1.140	1.160	1.180	1.100	1.140
MAR	.100	.580	.660	.740	.710	.690
APR	.130	.550	.760	.820	.990	.890
MAY	.170	.570	.730	.760	.770	.790
JUN	.170	1.050	.910	.870	1.030	.960
JUL	.170	1.340	1.320	1.330	1.460	1.370
AUG	.180	.200	.240	.220	.220	.220
SEP	.200	.940	.940	.940	.880	.840
OCT	.160	1.460	1.620	1.680	1.360	1.260
NOV	.120	1.160	1.160	1.160	1.160	1.160
DEC	.160	1.040	.920	.920	1.040	.940
HARDNESS (MG/L)		DET'N LIMIT = .500		GUIDELINE = 80-100 (A4)		
JAN	264.000	283.000	284.000	281.000	266.000	261.000
FEB	314.000	320.000	304.000	306.000	312.000	313.000
MAR	194.000	215.000	162.000	223.000	222.000	216.000
APR	269.000	277.000	272.000	270.000	279.000	276.000
MAY	296.000	302.000	300.000	300.000	303.000	305.000
JUN	290.000	279.000	286.000	282.000	288.000	289.000
JUL	267.000	275.000	277.000	276.000	276.000	277.000
AUG	308.000	327.000	319.000	315.000	314.000	327.000
SEP	300.000	313.000	303.000	307.000	304.000	302.000
OCT	343.000	336.000	337.000	335.000	345.000	334.000
NOV	309.000	310.000	323.000	321.000	312.000	309.000
DEC	401.000	393.000	387.000	390.000	379.000	390.000
IONCAL (DMNSLESS)		DET'N LIMIT = N/A		GUIDELINE = N/A		
JAN	.000 NAF	.000 NAF	.000 NAF	.000 NAF	.000 NAF	.000 NAF
FEB	.000 NAF	.000 NAF	.000 NAF	.000 NAF	.000 NAF	.000 NAF
MAR	.000 NAF	.000 NAF	.000 NAF	.000 NAF	.000 NAF	.000 NAF
APR	.000 NAF	.000 NAF	.000 NAF	.000 NAF	.000 NAF	.000 NAF
MAY	.000 NAF	.000 NAF	.000 NAF	.000 NAF	.000 NAF	.000 NAF
JUN	.000 NAF	.000 NAF	.000 NAF	.000 NAF	.000 NAF	.000 NAF
JUL	3.280	1.984	1.807	2.016	7.525	.207
AUG	3.305	4.188	4.027	3.066	1.262	7.564
SEP	4.480	1.074	1.565	1.309	1.644	1.064
OCT	1.095	.843	.825	1.261	3.346	1.127
NOV	5.698	3.373	.479	1.157	2.215	2.877
DEC	.627	1.200	2.266	1.912	1.702	1.280
LANGELIERS INDEX (DMNSLESS)		DET'N LIMIT = N/A		GUIDELINE = N/A		
JAN	.878 NAF	.735 NAF	.699 NAF	.648 NAF	.499 NAF	.480 NAF

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	1.136 NAF	.855 NAF	.644 NAF	.618 NAF	.673 NAF	.702 NAF
MAR	.719 NAF	.332 NAF	.436 NAF	.543 NAF	.445 NAF	.358 NAF
APR	1.214 NAF	1.078 NAF	1.070 NAF	1.009 NAF	1.148 NAF	1.095 NAF
MAY	.876 NAF	.592 NAF	.740 NAF	.654 NAF	.689 NAF	.612 NAF
JUN	1.057 NAF	.773 NAF	.842 NAF	.764 NAF	.925 NAF	.794 NAF
JUL	.968	.967	.993	.947	1.026	1.002
AUG	1.055	1.019	.958	.969	.988	.959
SEP	1.212	1.148	1.088	1.093	1.114	1.105
OCT	1.277	.946	.956	.847	.912	.924
NOV	1.229	1.145	1.180	1.162	1.119	1.100
DEC	1.294	.914	1.004	.931	.981	.971
MAGNESIUM (MG/L)			DET'N LIMIT = .050		GUIDELINE = 30 (F2)	
JAN	18.500	18.600	18.900	19.000	17.200	16.700
FEB	22.000	22.100	21.000	20.900	21.200	21.700
MAR	13.400	13.600	13.800	14.100	12.600	12.700
APR	20.600	20.400	20.800	21.000	21.200	21.000
MAY	23.400	23.700	23.900	23.300	23.400	23.400
JUN	24.200	24.400	24.600	23.600	24.500	24.000
JUL	22.300	21.800	21.500	21.500	21.400	21.200
AUG	23.900	23.600	23.000	23.400	23.300	23.200
SEP	24.600	24.300	24.200	24.100	23.600	23.800
OCT	24.900	25.400	24.900	24.500	25.500	24.300
NOV	22.600	22.500	22.300	22.700	22.000	22.500
DEC	28.200	28.000	28.400	28.500	27.800	28.600
SODIUM (MG/L)			DET'N LIMIT = .200		GUIDELINE = 200 (C3)	
JAN	37.000	38.400	41.800	41.800	36.200	35.400
FEB	68.400	68.600	75.000	75.600	59.000	59.400
MAR	11.200	17.200	16.400	16.000	24.200	21.800
APR	32.600	32.400	31.400	31.600	34.600	33.600
MAY	41.000	43.800	46.000	46.400	44.600	46.000
JUN	52.800	55.800	52.000	50.400	55.600	54.200
JUL	45.800	47.400	46.400	47.400	46.000	48.400
AUG	48.600	51.000	48.200	47.200	51.800	51.800
SEP	50.000	48.400	48.200	49.400	49.000	49.000
OCT	39.400	44.600	43.200	43.600	42.800	46.000
NOV	23.200	26.800	27.400	26.600	26.200	26.000
DEC	61.400	60.200	60.200	61.400	62.800	60.400
AMMONIUM TOTAL (MG/L)			DET'N LIMIT = 0.002		GUIDELINE = .05 (F2)	
JAN	.010	.274	.006 <T	.366	.158	.256

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	.468	.286	.278	.286	.218	.226
MAR	.008 <T	.318	.010	.388	.224	.286
APR	.010	.318	.256	.374	.232	.238
MAY	.016	.316	.284	.314	.268	.256
JUN	.064	.286	.302	.306	.222	.260
JUL	.012	.250	.012	.012	.048	.012
AUG	.006 <T	.242	.086	.312	.022	.030
SEP	.086	.304	.114	.318	.024	.052
OCT	.054	.286	.260	.294	.116	.026
NOV	.008 <T	.210	.262	.286	.032	.050
DEC	.484	.380	.022	.352	.094	.118
NITRITE (MG/L)			DET'N LIMIT = 0.001		GUIDELINE = 1.000 (A1)	
JAN	.072	.005	.370	.007	.132	.028
FEB	.065	.003 <T	.003 <T	.002 <T	.041	.026
MAR	.006	.002 <T	.355	.006	.120	.062
APR	.132	.004	.133	.006	.110	.053
MAY	.142	.003 <T	.014	.006	.078	.013
JUN	.056	.002 <T	.028	.004 <T	.085	.012
JUL	.152	.003 <T	.367	.395	.072	.006
AUG	.021	.004 <T	.128	.108	.003 <T	.080
SEP	.029	.002 <T	.285	.037	.002 <T	.059
OCT	.064	.008	.026	.013	.053	.016
NOV	.120	.002 <T	.009	.004 <T	.030	.077
DEC	.043	.003 <T	.300	.033	.085	.157
TOTAL NITRATES (MG/L)			DET'N LIMIT = .020		GUIDELINE = 10.000 (A1)	
JAN	3.630	3.040	3.350	3.130	3.200	3.120
FEB	3.970	3.670	3.600	3.510	3.700	3.680
MAR	3.240	2.770	2.990	2.560	2.890	2.760
APR	2.730	2.720	2.830	2.700	3.080	2.780
MAY	2.020	1.980	2.080	2.080	2.160	2.100
JUN	1.500	1.340	1.370	1.320	1.530	1.470
JUL	1.710	1.620	1.950	1.910	1.690	1.780
AUG	2.200	2.170	2.380	2.140	2.440	2.430
SEP	1.940	1.890	2.040	1.910	2.250	2.110
OCT	3.130	3.190	3.240	3.220	3.100	3.440
NOV	5.300	5.210	5.280	5.280	5.590	5.250
DEC	4.760	4.970	3.500	3.680	3.950	3.430
NITROGEN TOT KJELD (MG/L)			DET'N LIMIT = .020		GUIDELINE = N/A	
JAN	1.090	.800	.560	.860	.770	.880

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

SITE TYPE	WATER TREATMENT PLANT RAW	WATER TREATMENT PLANT TREATED	DISTRIBUTION SYSTEM SITE 1 STANDING	DISTRIBUTION SYSTEM SITE 1 FREE FLOW	DISTRIBUTION SYSTEM SITE 2 STANDING	DISTRIBUTION SYSTEM SITE 2 FREE FLOW
FEB	.920	.670	.780	.720	.630	.650
MAR	.825	.860	.540	.860	.740	.790
APR	.630	.750	.580	.820	.690	.720
MAY	.640	.890	.830	.870	.790	.820
JUN	.775	.850	.810	.810	.750	.810
JUL	.650	.740	.470	.440	.440	.430
AUG	.630	.670	.570	.740	.490	.470
SEP	.820	.770	.580	.750	.370	.470
OCT	.650	.850	.760	.620	.550	.500
NOV	.900	.740	.820	.810	.600	.660
DEC	1.110	.870	.740	.830	.520	.650
PH (DIMNSLESS)		DET'N LIMIT = N/A		GUIDELINE = 6.5-8.5(A4)		
JAN	8.190	8.050	8.010	7.970	7.880	7.870
FEB	8.320	8.070	7.900	7.870	7.910	7.940
MAR	8.230	7.840	7.920	8.010	7.910	7.850
APR	8.510	8.390	8.410	8.360	8.460	8.410
MAY	8.140	7.890	8.040	7.950	7.980	7.900
JUN	8.410	8.220	8.270	8.190	8.340	8.200
JUL	8.340	8.360	8.380	8.340	8.400	8.380
AUG	8.340	8.290	8.250	8.270	8.290	8.230
SEP	8.510	8.450	8.430	8.420	8.440	8.440
OCT	8.440	8.170	8.170	8.060	8.120	8.140
NOV	8.410	8.370	8.370	8.360	8.340	8.330
DEC	8.310	7.980	8.080	8.000	8.070	8.040
PHOSPHORUS FIL REACT (MG/L)		DET'N LIMIT = .0005		GUIDELINE = N/A		
JAN	.143	.019	.	.	.	.
FEB	.048	.007	.	.	.	.
MAR	.088	.004	.	.	.	.
APR	.011	.003	.	.	.	.
MAY	.037	.005	.	.	.	.
JUN	.017	.003	.	.	.	.
JUL	.053	.002 <T	.	.	.	.
AUG	.013	.003	.	.	.	.
SEP	.009	.003	.	.	.	.
OCT	.009	.002 <T	.	.	.	.
NOV	.021	.003	.	.	.	.
DEC	.020	.006	.	.	.	.
PHOSPHORUS TOTAL (MG/L)		DET'N LIMIT = .002		GUIDELINE = .40 (F2)		
JAN	.175	.031	.	.	.	.

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DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	.066	.014	.	.	.	.
MAR	.190	.002 <T	.	.	.	.
APR	.037	.010	.	.	.	.
MAY	.071	.012	.	.	.	.
JUN	.068	.016	.	.	.	.
JUL	.100	.016	.	.	.	.
AUG	.089	.011	.	.	.	.
SEP	.063	.013	.	.	.	.
OCT	.042	.011	.	.	.	.
NOV	.072	.008 <T	.	.	.	.
DEC	.039	.009 <T	.	.	.	.
SULPHATE ( )			DET'N LIMIT = .200		GUIDELINE = 500. (A3)	
JUL	89.400	102.000	102.000	103.000	115.000	98.100
AUG	99.700	115.000	113.000	112.000	118.000	106.000
SEP	118.000	118.000	122.000	119.000	121.000	120.000
OCT	101.500	111.600	106.500	106.200	108.100	106.100
NOV	69.000	82.000	81.500	81.500	80.000	80.000
DEC	105.100	108.500	110.200	111.300	110.900	110.800
TURBIDITY (FTU)			DET'N LIMIT = .02		GUIDELINE = 1.00 (A1)	
JAN	6.100	.400	1.300 BRV	.370	.520	.270
FEB	3.900	.670	.410	.710	.210	.210
MAR	43.000	.440	.960	1.160	.600	.290
APR	4.000	.270	.220	.280	.380	.180
MAY	3.000	2.700 UCR	.220	.240	.440	.360
JUN	14.500	.910	.640	.590	.510	.440
JUL	7.100	.440	.520	.660	.900	.340
AUG	ICR	ICR	ICR	ICR	ICR	ICR
SEP	14.700	.780	.830	.450	.430	.510
OCT	7.200	.370	.620	.650	.270	.260
NOV	16.600	.470	.520	.910	.390	.370
DEC	2.600	.490	.330	.290	.530	.320

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	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
METALS						
SILVER (UG/L)			DET'N LIMIT = .020		GUIDELINE = 50. (A1)	
JAN	BDL	BDL	.090 <T	.060 <T	.150 <T	.050 <T
FEB	.030 <T	BDL	.070 <T	.050 <T	.070 <T	.020 <T
MAR	.020 <T	BDL	.120 <T	BDL	.150 <T	BDL
APR	BDL	BDL	.120 <T	.060 <T	.250 <T	.050 <T
MAY	BDL	BDL	.030 <T	BDL	.060 <T	.030 <T
JUN	BDL	.050 <T	.050 <T	.120 <T	.630	.070 <T
JUL	BDL	BDL	.050 <T	.080 <T	.770	.030 <T
AUG	.080 <T	.050 <T	.070 <T	.050 <T	.090 <T	.040 <T
SEP	BDL	.210 <T	.060 <T	.040 <T	.490 <T	.050 <T
OCT	BDL	.120 <T	.060 <T	.040 <T	.050 <T	BDL
NOV	BDL	BDL	.030 <T	BDL	.350 <T	.030 <T
DEC	.040 <T	.030 <T	.090 <T	.030 <T	.140 <T	BDL
ALUMINUM (UG/L)			DET'N LIMIT = .050		GUIDELINE = 100.(A4)	
JAN	324.800	87.000	162.400	95.120	46.400	42.920
FEB	76.560	54.520	150.800	197.200	32.480	32.480
MAR	464.000	70.760	150.800	139.200	31.320	29.000
APR	105.560	93.960	77.720	73.080	55.680	71.920
MAY	58.000	87.000	127.600	127.600	98.600	127.600
JUN	8.932	139.200	116.000	174.000	110.200	91.640
JUL	197.200	116.000	139.200	162.400	174.000	174.000
AUG	348.000	324.800	232.000	313.200	185.600	220.400
SEP	185.600	185.600	243.600	162.400	104.400	102.080
OCT	150.800	99.760	127.600	139.200	52.200	63.800
NOV	243.600	53.360	63.800	116.000	46.400	40.600
DEC	56.840	29.000	30.160	30.160	30.160	26.680
ARSENIC (UG/L)			DET'N LIMIT = 0.050		GUIDELINE = 50.0 (A1)	
JAN	1.100	1.100	1.200	1.100	.910 <T	.990 <T
FEB	.850 <T	1.000	.960 <T	.740 <T	.720 <T	.720 <T
MAR	.130 <T	BDL	BDL	BDL	BDL	BDL
APR	BDL	BDL	BDL	BDL	BDL	BDL
MAY	1.200	.790 <T	.780 <T	.620 <T	.620 <T	.630 <T
JUN	1.000 <T	.850 <T	.580 <T	.540 <T	.490 <T	.690 <T
JUL	BDL	BDL	BDL	1.100	1.200	1.100
AUG	1.000 <T	.710 <T	.840 <T	.970 <T	.820 <T	1.100
SEP	.860 <T	.660 <T	.590 <T	1.100	1.200	1.200
OCT	1.100	.850 <T	1.000 <T	.850 <T	.890 <T	.930 <T
NOV	.700 <T	.370 <T	.390 <T	.360 <T	.280 <T	.280 <T
DEC	.410 <T	BDL	BDL	BDL	.290 <T	.550 <T

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DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
BARIUM (UG/L)			DET'N LIMIT = 0.020		GUIDELINE = 1000. (A1)	
JAN	29.000	27.000	26.000	25.000	24.000	23.000
FEB	29.000	25.000	25.000	26.000	23.000	23.000
MAR	23.000	17.000	17.000	17.000	18.000	18.000
APR	33.000	29.000	28.000	27.000	30.000	28.000
MAY	37.000	35.000	35.000	35.000	36.000	37.000
JUN	35.000	35.000	33.000	39.000	40.000	39.000
JUL	41.000	37.000	35.000	39.000	40.000	43.000
AUG	43.000	35.000	35.000	34.000	36.000	35.000
SEP	41.000	35.000	35.000	34.000	35.000	36.000
OCT	37.000	37.000	39.000	38.000	35.000	35.000
NOV	36.000	29.000	27.000	27.000	28.000	28.000
DEC	40.000	38.000	37.000	36.000	36.000	36.000
BORON (UG/L)			DET'N LIMIT = 0.200		GUIDELINE = 5000. (A1)	
JAN	32.000	39.000	40.000	38.000	33.000	31.000
FEB	33.000	34.000	32.000	31.000	33.000	34.000
MAR	14.000 <T	18.000 <T	16.000 <T	15.000 <T	22.000	20.000
APR	40.000	38.000	38.000	35.000	41.000	43.000
MAY	54.000	50.000	51.000	50.000	52.000	58.000
JUN	80.000	100.000	62.000	88.000	93.000	85.000
JUL	84.000	74.000	95.000	89.000	88.000	92.000
AUG	120.000	72.000	100.000	110.000	93.000	110.000
SEP	140.000	150.000	150.000	130.000	130.000	170.000
OCT	48.000	56.000	51.000	51.000	51.000	47.000
NOV	110.000	120.000	110.000	120.000	120.000	120.000
DEC	110.000	130.000	120.000	130.000	120.000	130.000
BERYLLIUM (UG/L)			DET'N LIMIT = 0.010		GUIDELINE = .20 (W)	
JAN	.010 <T	BDL	.020 <T	.020 <T	BDL	BDL
FEB	.010 <T	.010 <T	.020 <T	.010 <T	.010 <T	.010 <T
MAR	.060 <T	.020 <T	.010 <T	.030 <T	BDL	.010 <T
APR	BDL	BDL	.080 <T	.020 <T	.030 <T	.080 <T
MAY	BDL	BDL	BDL	BDL	BDL	BDL
JUN	BDL	BDL	BDL	BDL	BDL	BDL
JUL	.030 <T	.040 <T	.070 <T	.130 <T	.030 <T	.040 <T
AUG	.040 <T	BDL	.070 <T	.050 <T	.030 <T	.090 <T
SEP	.050 <T	.160 <T	.230 <T	.180 <T	.080 <T	.150 <T
OCT	BDL	.030 <T	BDL	BDL	.050 <T	BDL
NOV	.160 <T	.210 <T	.150 <T	.190 <T	.170 <T	.180 <T
DEC	.140 <T	.130 <T	.200 <T	.160 <T	.150 <T	.220 <T
CADMIUM (UG/L)			DET'N LIMIT = 0.050		GUIDELINE = 5.000 (A1)	

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DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
JAN	.050 <T	BDL	.110 <T	.070 <T	.200 <T	.070 <T
FEB	.060 <T	.050 <T	.080 <T	.060 <T	.090 <T	.080 <T
MAR	.090 <T	BDL	BDL	BDL	.140 <T	BDL
APR	.200 <T	.090 <T	BDL	.070 <T	.260 <T	.070 <T
MAY	BDL	.070 <T	BDL	BDL	.080 <T	.070 <T
JUN	.060 <T	.070 <T	.120 <T	BDL	.130 <T	BDL
JUL	.080 <T	BDL	BDL	.100 <T	.120 <T	.080 <T
AUG	.070 <T	BDL	BDL	BDL	BDL	BDL
SEP	.060 <T	BDL	.060 <T	BDL	.080 <T	BDL
OCT	BDL	BDL	BDL	BDL	BDL	BDL
NOV	.060 <T	BDL	.060 <T	BDL	.080 <T	BDL
DEC	.090 <T	.120 <T	BDL	BDL	BDL	BDL
COBALT (UG/L)		DET'N LIMIT = 0.020		GUIDELINE = 1000 (N)		
JAN	.240 <T	.160 <T	.340 <T	.310 <T	.350 <T	.320 <T
FEB	.070 <T	.030 <T	.040 <T	.040 <T	.020 <T	.060 <T
MAR	.470 <T	.050 <T	.020 <T	.170 <T	.170 <T	.160 <T
APR	.210 <T	.160 <T	.170 <T	.210 <T	1.500	.250 <T
MAY	.430 <T	.360 <T	.390 <T	.370 <T	.370 <T	.370 <T
JUN	.190 <T	.280 <T	.220 <T	.220 <T	.250 <T	.320 <T
JUL	.740 <T	.500 <T	.550 <T	.260 <T	.250 <T	.290 <T
AUG	.710 <T	.320 <T	.370 <T	.380 <T	.340 <T	.360 <T
SEP	.510 <T	.310 <T	.350 <T	.340 <T	.280 <T	.300 <T
OCT	.180 <T	.130 <T	.140 <T	.110 <T	.210 <T	.160 <T
NOV	.460 <T	.200 <T	.380 <T	.360 <T	.370 <T	.360 <T
DEC	.270 <T	.190 <T	.240 <T	.280 <T	.260 <T	.310 <T
CHROMIUM (UG/L)		DET'N LIMIT = 0.100		GUIDELINE = 50. (A1)		
JAN	.950 <T	.470 <T	.600 <T	.480 <T	.530 <T	.520 <T
FEB	1.000	.550 <T	.710 <T	.680 <T	.540 <T	.540 <T
MAR	2.100	1.600	.490 <T	.510 <T	.600 <T	.700 <T
APR	1.100	1.100	1.600	1.100	.960 <T	1.700
MAY	2.400	.750 <T	.650 <T	.660 <T	.670 <T	.710 <T
JUN	2.700	6.900	.520 <T	.940 <T	1.000 <T	1.300
JUL	5.500	1.900	4.300	8.100	8.000	8.300
AUG	8.100	1.400	5.700	6.300	4.000	6.500
SEP	8.800	7.700	7.400	6.400	6.200	8.900
OCT	1.500	.950 <T	.770 <T	.820 <T	.710 <T	.750 <T
NOV	10.000	10.000	9.100	9.300	9.100	10.000
DEC	8.100	9.200	8.400	8.600	8.600	9.900
COPPER (UG/L)		DET'N LIMIT = .100		GUIDELINE = 1000 (A3)		
JAN	2.800	3.200	22.000	5.600	360.000	18.000

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DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	2.400	3.200	15.000	16.000	220.000	15.000
MAR	2.500	2.400	13.000	9.100	230.000	19.000
APR	5.700	3.300	14.000	27.000	460.000	27.000
MAY	2.700	3.500	22.000	14.000	430.000	34.000
JUN	2.800	4.600	20.000	25.000	550.000	29.000
JUL	4.100	2.600	8.600	16.000	230.000	23.000
AUG	5.000	2.200	8.000	2.600	79.000	12.000
SEP	4.400	2.700	6.500	7.600	150.000	14.000
OCT	2.600	2.200	11.000	28.000	280.000	18.000
NOV	3.400	2.200	23.000	9.000	300.000	16.000
DEC	3.600	3.200	46.000	3.900	190.000	21.000
IRON (UG/L)			DET'N LIMIT = 4.000		GUIDELINE = 300. (A3)	
JAN	290.000	16.000 <T	33.000 <T	23.000 <T	21.000 <T	23.000 <T
FEB	120.000	8.900 <T	26.000 <T	29.000 <T	11.000 <T	10.000 <T
MAR	590.000	15.000 <T	29.000 <T	28.000 <T	14.000 <T	17.000 <T
APR	180.000	22.000 <T	15.000 <T	13.000 <T	25.000 <T	30.000 <T
MAY	140.000	11.000 <T	14.000 <T	15.000 <T	16.000 <T	22.000 <T
JUN	BDL	21.000 <T	18.000 <T	28.000 <T	23.000 <T	18.000 <T
JUL	280.000	BDL	8.900 <T	16.000 <T	16.000 <T	18.000 <T
AUG	560.000	8.900 <T	9.700 <T	11.000 <T	7.200 <T	11.000 <T
SEP	300.000	BDL	22.000 <T	11.000 <T	8.200 <T	6.500 <T
OCT	210.000	16.000 <T	30.000 <T	31.000 <T	13.000 <T	21.000 <T
NOV	290.000	BDL	BDL	13.000 <T	6.200 <T	5.600 <T
DEC	120.000	19.000 <T	24.000 <T	25.000 <T	26.000 <T	18.000 <T
MERCURY (UG/L)			DET'N LIMIT = 0.010		GUIDELINE = 1.000 (A1)	
JAN	.010	.030	.	.010	.	.020
FEB	.010	.010	.	.010	.	.010
MAR	.020	.010	.	.010	.	.010
APR	.010	.010	.	.020	.	.010
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	ISS	.	BDL	.	BDL
NOV	BDL	.020 <T	.	.060	.	BDL
DEC	BDL	.300	.	.380	.	BDL
MANGANESE (UG/L)			DET'N LIMIT = .050		GUIDELINE = 50.0 (A3)	
JAN	15.000	2.300	2.400	2.100	3.000	2.800

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

SITE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	13.000	1.800	2.900	2.900	2.000	2.000
MAR	51.000	1.300	1.800	2.000	1.700	1.700
APR	22.000	1.900	1.800	1.700	2.600	1.900
MAY	50.000	1.800	2.800	3.100	1.900	2.000
JUN	.410 <T	2.800	2.500	3.000	2.400	1.900
JUL	38.000	1.000	1.500	1.800	1.600	1.300
AUG	57.000	1.200	1.500	1.700	.970	1.000
SEP	37.000	1.000	2.300	1.800	1.200	1.000
OCT	18.000	1.800	3.000	3.200	1.600	1.800
NOV	38.000	1.800	2.300	2.700	2.000	2.000
DEC	9.300	2.300	2.700	2.700	2.200	2.300
MOLYBDENUM (UG/L)			DET'N LIMIT = 0.020		GUIDELINE = 500 (N)	
JAN	.600	.780	.750	.710	.790	.750
FEB	.660	.750	.640	.620	.700	.800
MAR	.250 <T	.540	.500	.530	.710	.670
APR	.780	.830	.780	.710	.830	.850
MAY	1.400	1.500	1.500	1.500	1.500	1.500
JUN	2.400	2.300	2.000	2.200	2.200	2.200
JUL	3.600	2.000	1.900	2.000	2.400	2.500
AUG	2.000	1.600	1.600	1.400	1.600	1.600
SEP	2.800	1.400	1.500	1.600	1.500	1.500
OCT	1.300	1.700	1.700	1.600	1.600	1.800
NOV	.520	.650	.760	.710	.740	.790
DEC	1.100	.970	1.100	1.100	1.200	1.200
NICKEL (UG/L)			DET'N LIMIT = 0.100		GUIDELINE = 50. (F3)	
JAN	1.300 <T	1.100 <T	4.300	4.600	6.000	4.700
FEB	.660 <T	.350 <T	.350 <T	.220 <T	.200 <T	BDL
MAR	1.300 <T	BDL	BDL	BDL	1.300 <T	.120 <T
APR	2.000	3.000	3.200	2.800	4.400	3.500
MAY	2.700	3.300	4.000	3.000	4.500	3.200
JUN	4.100	4.700	3.900	1.600 <T	4.700	2.900
JUL	7.600	2.800	3.900	2.700	3.700	2.500
AUG	8.600	2.600	4.000	3.100	3.900	3.600
SEP	7.400	2.900	3.000	3.100	6.200	3.900
OCT	2.600	1.700 <T	2.600	1.600 <T	4.700	3.000
NOV	1.100 <T	1.600 <T	2.200	1.700 <T	2.900	1.300 <T
DEC	.180 <T	.160 <T	.720 <T	.290 <T	.640 <T	BDL
LEAD (UG/L)			DET'N LIMIT = 0.050		GUIDELINE = 50. (A1)	
JAN	.640	.390	2.800	.300	51.000	3.100

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	.560	.090 <T	.650	.300	31.000	2.100
MAR	1.500	.090 <T	1.300	.280	24.000	1.800
APR	2.200	.160 <T	1.200	.450	57.000	3.800
MAY	.920	.280	1.100	.530	34.000	4.100
JUN	.090 <T	.320	2.200	.840	31.000	3.600
JUL	2.600	.120 <T	1.600	.580	43.000	6.200
AUG	4.400	.180 <T	1.700	.560	37.000	5.400
SEP	2.000	.140 <T	1.500	.410	23.000	2.800
OCT	1.400	.180 <T	1.500	.490	20.000	2.500
NOV	3.500	.120 <T	2.300	.780	48.000	3.800
DEC	.750	.120 <T	1.300	.280	23.000	2.600
ANTIMONY (UG/L)			DET'N LIMIT = .050		GUIDELINE = 146. (D4)	
JAN	.100 <T	.140 <T	.130 <T	.160 <T	.230	.160 <T
FEB	.120 <T	.160 <T	.160 <T	.130 <T	.190 <T	.160 <T
MAR	.080 <T	.090 <T	.080 <T	.110 <T	.170 <T	.140 <T
APR	.290	.210	.180 <T	.190 <T	.370	.260
MAY	.220	.190 <T	.190 <T	.250	.290	.250
JUN	.400	.460	.290	.320	.580	.480
JUL	.640	.570	.860	.970	.820	.960
AUG	.700	.780	.670	.590	.640	.560
SEP	.600	.760	.740	.630	.710	.660
OCT	.180 <T	.290	.240	.200 <T	.370	.230
NOV	.470	.460	.380	.450	.580	.450
DEC	.390	.430	.490	.460	.390	.420
SELENIUM (UG/L)			DET'N LIMIT = 0.200		GUIDELINE = 10. (A1)	
JAN	.870 <T	.470 <T	1.200 <T	1.200 <T	.640 <T	.860 <T
FEB	.790 <T	1.100 <T	.940 <T	.800 <T	.820 <T	.340 <T
MAR	.810 <T	.980 <T	1.000 <T	1.100 <T	1.400 <T	1.300 <T
APR	1.300 <T	2.500 <T	1.500 <T	2.600 <T	1.600 <T	2.800 <T
MAY	1.100 <T	1.900 <T	1.100 <T	1.400 <T	1.500 <T	1.600 <T
JUN	.410 <T	3.900 <T	2.300 <T	2.800 <T	4.200 <T	3.100 <T
JUL	BDL	.350 <T	BDL	2.300 <T	1.800 <T	3.000 <T
AUG	.640 <T	1.200 <T	2.000 <T	1.700 <T	2.800 <T	2.000 <T
SEP	.720 <T	2.600 <T	2.900 <T	3.300 <T	3.300 <T	3.800 <T
OCT	.960 <T	2.300 <T	1.200 <T	2.600 <T	1.700 <T	1.400 <T
NOV	1.100 <T	3.100 <T	2.600 <T	1.800 <T	2.800 <T	2.300 <T
DEC	1.900 <T	1.600 <T	3.700 <T	3.700 <T	2.600 <T	2.500 <T
STRONTIUM (UG/L)			DET'N LIMIT = .050		GUIDELINE = 2000.(H)	
JAN	430.000	430.000	410.000	410.000	340.000	360.000

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	530.000	520.000	490.000	490.000	480.000	480.000
MAR	160.000	180.000	180.000	180.000	250.000	230.000
APR	560.000	550.000	500.000	490.000	520.000	530.000
MAY	770.000	750.000	730.000	730.000	740.000	740.000
JUN	840.000	780.000	770.000	780.000	780.000	770.000
JUL	630.000	580.000	590.000	720.000	840.000	890.000
AUG	700.000	660.000	710.000	670.000	690.000	730.000
SEP	890.000	780.000	790.000	810.000	810.000	810.000
OCT	650.000	720.000	730.000	720.000	680.000	770.000
NOV	440.000	420.000	420.000	430.000	410.000	390.000
DEC	750.000	750.000	760.000	740.000	730.000	740.000
TITANIUM (UG/L)			DET'N LIMIT = .050		GUIDELINE = N/A	
JAN	32.000	14.000	12.000	11.000	11.000	11.000
FEB	16.000	13.000	14.000	15.000	14.000	14.000
MAR	22.000	12.000	13.000	13.000	11.000	11.000
APR	9.500	5.200	5.800	5.400	5.700	6.000
MAY	8.100	5.500	5.000	5.100	5.100	5.200
JUN	7.400	7.400	6.600	7.900	8.100	8.300
JUL	21.000	13.000	13.000	4.700	5.200	5.700
AUG	21.000	8.700	9.200	10.000	8.800	9.100
SEP	19.000	14.000	15.000	14.000	15.000	15.000
OCT	16.000	10.000	10.000	10.000	9.900	9.500
NOV	26.000	15.000	15.000	15.000	15.000	16.000
DEC	14.000	13.000	12.000	12.000	12.000	12.000
THALLIUM (UG/L)			DET'N LIMIT = .010		GUIDELINE = 13. (D4)	
JAN	BDL	.010 <T	.020 <T	.020 <T	.020 <T	.010 <T
FEB	BDL	BDL	.020 <T	BDL	.010 <T	BDL
MAR	.010 <T	.010 <T	.010 <T	.010 <T	.010 <T	BDL
APR	BDL	BDL	.030 <T	BDL	.020 <T	.020 <T
MAY	BDL	BDL	BDL	BDL	BDL	BDL
JUN	.020 <T	.030 <T	BDL	.060 <T	.050 <T	.060 <T
JUL	BDL	BDL	BDL	BDL	BDL	.030 <T
AUG	BDL	BDL	BDL	BDL	BDL	BDL
SEP	BDL	BDL	BDL	BDL	BDL	BDL
OCT	.020 <T	BDL	BDL	BDL	BDL	BDL
NOV	BDL	BDL	BDL	BDL	BDL	BDL
DEC	BDL	BDL	BDL	BDL	BDL	BDL
URANIUM (UG/L)			DET'N LIMIT = .020		GUIDELINE = 20. (A2)	
JAN	.600	.660	.700	.760	.670	.660

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

	WATER TREATMENT PLANT				DISTRIBUTION SYSTEM	
SITE	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	.850	.850	.900	.820	.860	.860
MAR	.500	.630	.620	.620	.570	.550
APR	.770	.930	.920	.860	.900	.840
MAY	.710	.830	.780	.740	.760	.760
JUN	.800	.830	.780	.850	.890	.820
JUL	.620	.700	.780	.820	.820	.910
AUG	.650	.760	.790	.730	.690	.680
SEP	.580	.700	.780	.690	.700	.740
OCT	.750	.850	.870	.840	.740	.670
NOV	1.100	1.300	1.200	1.200	1.200	1.300
DEC	1.100	1.100	1.100	1.100	1.100	1.100
VANADIUM (UG/L)			DET'N LIMIT = .050		GUIDELINE = 100 (N)	
JAN	1.200	1.400	1.500	1.500	1.500	1.500
FEB	.350 <T	.770	.800	.820	.900	.950
MAR	1.500	1.500	1.500	1.500	1.300	1.400
APR	.430	.600	.700	.750	.720	.710
MAY	.810	1.300	1.500	1.400	1.300	1.400
JUN	.860	1.600	1.600	1.600	1.600	1.800
JUL	1.300	1.800	2.000	2.200	2.000	2.000
AUG	1.600	1.700	1.700	1.800	1.600	1.900
SEP	.890	1.400	1.300	1.300	1.300	1.400
OCT	.800	1.100	1.100	1.100	1.100	1.000
NOV	1.100	1.600	1.400	1.500	1.500	1.700
DEC	.430 <T	.650	.680	.600	.830	.720
ZINC (UG/L)			DET'N LIMIT = .001		GUIDELINE = 5000. (A3)	
JAN	12.000	6.800	23.000	8.100	47.000	9.500
FEB	13.000	9.800	16.000	10.000	21.000	7.200
MAR	14.000	4.700	18.000	4.200	26.000	5.500
APR	16.000	8.300	19.000	7.100	39.000	8.000
MAY	8.100	8.200	14.000	5.700	36.000	7.800
JUN	6.200	11.000	22.000	8.900	48.000	10.000
JUL	10.000	7.100	12.000	4.000	34.000	6.200
AUG	18.000	7.200	11.000	7.700	21.000	13.000
SEP	13.000	7.300	12.000	7.400	40.000	9.200
OCT	11.000	8.800	19.000	7.700	45.000	10.000
NOV	14.000	6.800	25.000	6.000	36.000	8.000
DEC	16.000	12.000	21.000	12.000	30.000	13.000

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

	WATER TREATMENT PLANT				DISTRIBUTION SYSTEM	
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
CHLOROAROMATICS						
HEXACHLOROETHANE (NG/L)			DET'N LIMIT = 1.000		GUIDELINE = 1900 (D4)	
JAN	BDL	BDL	.	BDL	.	BDL
FEB	BDL	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	11.000	.	10.000 <T
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	ILA	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	4.000 <T	.	BDL	.	ILA
SEP	BDL	BDL	.	7.000 <T	.	6.000 <T
OCT	BDL	BDL	.	BDL	.	BDL
NOV	ILA	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
CHLOROPHENOLS						
PENTACHLOROPHENOL (NG/L)			DET'N LIMIT = 50.		GUIDELINE = 60000 (B1)	
JUN	BDL	BDL	.	.	.	.
NOV	20.000 <T	BDL	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
PAH						
BENZO(A)ANTHRACENE (NG/L)			DET'N LIMIT = 20.000		GUIDELINE = 2.8 (D4T)	
JAN	BDL	BDL	.	.	.	.
FEB	BDL	BDL	.	.	.	.
MAR	BDL	BDL	.	.	.	.
APR	BDL	BDL	.	.	.	.
MAY	BDL	BDL	.	.	.	.
JUN	BDL	BDL	.	.	.	.
JUL	BDL	BDL	.	.	.	.
AUG	20.000 <T	BDL	.	.	.	.
SEP	BDL	BDL	.	.	.	.
OCT	BDL	BDL	.	.	.	.
NOV	BDL	BDL	.	.	.	.
DEC	BDL	BDL	.	.	.	.
BENZO(B) FLUORANTHEN (NG/L)			DET'N LIMIT = 10.000		GUIDELINE = 2.8 (D4T)	
JAN	BDL	BDL	.	.	.	.
FEB	BDL	BDL	.	.	.	.
MAR	BDL	BDL	.	.	.	.
APR	BDL	BDL	.	.	.	.
MAY	BDL	BDL	.	.	.	.
JUN	BDL	BDL	.	.	.	.
JUL	BDL	BDL	.	.	.	.
AUG	20.000 <T	BDL	.	.	.	.
SEP	BDL	BDL	.	.	.	.
OCT	BDL	BDL	.	.	.	.
NOV	BDL	BDL	.	.	.	.
DEC	BDL	BDL	.	.	.	.
BENZO(K) FLUORANTHEN (NG/L)			DET'N LIMIT = N/A		GUIDELINE = 2.8 (D4T)	
JAN	BDL	BDL	.	.	.	.
FEB	BDL	BDL	.	.	.	.
MAR	BDL	BDL	.	.	.	.
APR	BDL	BDL	.	.	.	.
MAY	BDL	BDL	.	.	.	.
JUN	BDL	BDL	.	.	.	.
JUL	BDL	BDL	.	.	.	.
AUG	5.000 <T	BDL	.	.	.	.
SEP	BDL	BDL	.	.	.	.
OCT	BDL	BDL	.	.	.	.
NOV	2.000 <T	BDL	.	.	.	.
DEC	BDL	BDL	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
BENZO(A) PYRENE (NG/L)			DET'N LIMIT = 5.000		GUIDELINE = 10 (B1)	
JAN	BDL	BDL	.	.	.	.
FEB	BDL	BDL	.	.	.	.
MAR	BDL	BDL	.	.	.	.
APR	BDL	BDL	.	.	.	.
MAY	BDL	BDL	.	.	.	.
JUN	BDL	BDL	.	.	.	.
JUL	BDL	BDL	.	.	.	.
AUG	BDL	BDL	.	.	.	.
SEP	BDL	BDL	.	.	.	.
OCT	BDL	BDL	.	.	.	.
NOV	5.000 <T	BDL	.	.	.	.
DEC	BDL	BDL	.	.	.	.
CORONENE (NG/L)			DET'N LIMIT = 10.000		GUIDELINE = 2.8 (D4T)	
JAN	BDL	BDL	.	.	.	.
FEB	BDL	BDL	.	.	.	.
MAR	BDL	BDL	.	.	.	.
APR	BDL	BDL	.	.	.	.
MAY	BDL	BDL	.	.	.	.
JUN	BDL	BDL	.	.	.	.
JUL	BDL	BDL	.	.	.	.
AUG	BDL	BDL	.	.	.	.
SEP	BDL	BDL	.	.	.	.
OCT	BDL	BDL	.	.	.	.
NOV	22.000 <T	BDL	.	.	.	.
DEC	BDL	BDL	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

SITE TYPE	WATER TREATMENT PLANT RAW	WATER TREATMENT PLANT TREATED	DISTRIBUTION SYSTEM SITE 1 STANDING	DISTRIBUTION SYSTEM SITE 1 FREE FLOW	DISTRIBUTION SYSTEM SITE 2 STANDING	DISTRIBUTION SYSTEM SITE 2 FREE FLOW
PESTICIDES & PCB						
ALPHA BHC (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 700 (G)		
JAN	1.000 <T	BDL	.	BDL	.	1.000 <T
FEB	BDL	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	2.000 <T	.	2.000 <T
APR	BDL	2.000 <T	.	BDL	.	2.000 <T
MAY	BDL	BDL	.	7.000 <T	.	BDL
JUN	BDL	ILA	.	3.000 <T	.	6.000 <T
JUL	BDL	BDL	.	4.000 <T	.	BDL
AUG	BDL	BDL	.	5.000 <T	.	ILA
SEP	1.000 <T	BDL	.	BDL	.	1.000 <T
OCT	BDL	BDL	.	BDL	.	2.000 <T
NOV	ILA	1.000 <T	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
LINDANE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 4000 (A1)		
JAN	2.000 <T	1.000 <T	.	1.000 <T	.	2.000 <T
FEB	4.000 <T	BDL	.	4.000 <T	.	2.000 <T
MAR	BDL	BDL	.	2.000 <T	.	3.000 <T
APR	1.000 <T	BDL	.	BDL	.	3.000 <T
MAY	3.000 <T	10.000 <T	.	10.000 <T	.	9.000 <T
JUN	4.000 <T	ILA	.	7.000 <T	.	8.000 <T
JUL	BDL	BDL	.	4.000 <T	.	BDL
AUG	4.000 <T	4.000 <T	.	13.000	.	ILA
SEP	6.000 <T	6.000 <T	.	6.000 <T	.	5.000 <T
OCT	1.000 <T	6.000 <T	.	4.000 <T	.	5.000 <T
NOV	ILA	4.000 <T	.	4.000 <T	.	3.000 <T
DEC	7.000 <T	8.000 <T	.	BDL	.	7.000 <T
ATRAZINE (NG/L)		DET'N LIMIT = 50.00		GUIDELINE = 60000 (B3)		
JAN	BDL	BDL	.	BDL	.	BDL
FEB	BDL	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	IQU	210.000 <T	.	160.000 <T	.	210.000 <T
MAY	BDL	BDL	.	BDL	.	BDL
JUN	220.000 <T	240.000 <T	.	180.000 <T	.	210.000 <T
JUL	100.000 <T	100.000 <T	.	110.000 <T	.	140.000 <T
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	BDL	.	BDL
OCT	300.000 <T	520.000	.	360.000 <T	.	300.000 <T
NOV	230.000 <T	310.000 <T	.	330.000 <T	.	340.000 <T
DEC	110.000 <T	120.000 <T	.	110.000 <T	.	80.000 <T

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
PHENOLICS (UG/L)	PHENOLICS		DET'N LIMIT = 0.2		GUIDELINE = 2.00 (A3)	
JAN	BDL	BDL	.	.	.	.
FEB	.600 <T	.600 <T	.	.	.	.
MAR	.600 <T	.400 <T	.	.	.	.
APR	BDL	BDL	.	.	.	.
MAY	3.800	4.000	.	.	.	.
JUN	2.600	2.200	.	.	.	.
JUL	1.800	1.600	.	.	.	.
AUG	1.600	1.400	.	.	.	.
SEP	2.200	2.000	.	.	.	.
OCT	2.600	2.800	.	.	.	.
NOV	.600 <T	1.000	.	.	.	.
DEC	1.600	2.000	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
SPECIFIC PESTICIDES						
DIAZINON (NG/L)			DET'N LIMIT = 20.000		GUIDELINE = 14000 (A1)	
JUN	BDL	BDL	.	.	.	.
NOV	110.000 <1	70.000 <1	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
VOLATILES						
TOLUENE (UG/L)			DET'N LIMIT = .050		GUIDELINE = 24.0 (84)	
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	.100 <T	.	.100 <T	.	.150 <T
MAY	BDL	BDL	.	.050 <T	.	.050 <T
JUN	BDL	BDL	.	.100 <T	.	.100 <T
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	.100 <T	.	.050 <T	.	.100 <T
DEC	BDL	BDL	.	BDL	.	BDL
ETHYLBENZENE (UG/L)			DET'N LIMIT = .050		GUIDELINE = 2.4 (84)	
MAR	BDL	!TX	.	BDL	.	BDL
APR	BDL	BDL	.	.050 <T	.	.050 <T
MAY	BDL	.050 <T	.	.100 <T	.	BDL
JUN	BDL	.100 <T	.	BDL	.	BDL
JUL	BDL	.050 <T	.	.100 <T	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	.050 <T	.	.050 <T	.	BDL
OCT	BDL	.100 <T	.	.050 <T	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	.050 <T	.	BDL
STYRENE (UG/L)			DET'N LIMIT = .050		GUIDELINE = 46.5 (82)	
SEP	BDL	.300 <T	.	.250 <T	.	.100 <T
OCT	.100 <T	.300 <T	.	.150 <T	.	BDL
NOV	.100 <T	.150 <T	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	.050 <T
CHLOROFORM (UG/L)			DET'N LIMIT = .100		GUIDELINE = 350 (A1+)	
MAR	!TX	!TX	.	!TX	.	!TX
APR	BDL	127.600	.	102.400	.	101.300
MAY	BDL	165.000	.	155.000	.	160.000
JUN	.200 <T	161.000	.	129.000	.	139.000
JUL	.300 <T	175.000	.	155.000	.	154.600
AUG	.500 <T	146.700	.	131.800	.	143.000
SEP	.700 <T	131.000	.	114.000	.	122.000
OCT	.400 <T	136.000	.	103.000	.	130.000
NOV	BDL	123.000	.	118.000	.	115.000
DEC	.200 <T	90.100	.	81.800	.	86.900

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

SITE TYPE	WATER TREATMENT PLANT RAW	WATER TREATMENT PLANT TREATED	DISTRIBUTION SYSTEM SITE 1 STANDING	DISTRIBUTION SYSTEM SITE 1 FREE FLOW	DISTRIBUTION SYSTEM SITE 2 STANDING	DISTRIBUTION SYSTEM SITE 2 FREE FLOW
111, TRICHLOROETHANE (UG/L) DET'N LIMIT = .020 GUIDELINE = 200 (D1)						
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	.100 <T	BDL	.	BDL	.	BDL
JUN	.180 <T	.140 <T	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
1,2 DICHLOROETHANE (UG/L) DET'N LIMIT = .050 GUIDELINE = 5.0 (D1)						
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	.400 <T	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
CARBON TETRACHLORIDE (UG/L) DET'N LIMIT = .200 GUIDELINE = 5.0 (D1)						
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	.200 <T	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	.200 <T	.	.400 <T	.	.200 <T
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
DICHLOROBROMOMETHANE (UG/L) DET'N LIMIT = .050 GUIDELINE = 350 (A1+)						
MAR	BDL	ITX	.	ITX	.	ITX
APR	BDL	18.900	.	14.800	.	15.800
MAY	BDL	27.800	.	27.800	.	21.000
JUN	BDL	28.300	.	23.500	.	27.500
JUL	.100 <T	28.200	.	27.800	.	27.900

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BRANTFORD WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
AUG	BDL	28.100	.	25.600	.	28.600
SEP	BDL	32.800	.	28.650	.	32.900
OCT	.200 <T	24.200	.	18.800	.	22.000
NOV	BDL	13.700	.	13.100	.	12.350
DEC	BDL	18.750	.	17.400	.	18.850
CHLORODIBROMOMETHANE (UG/L)		DET'N LIMIT = .100		GUIDELINE = 350 (A1+)		
MAR	BDL	ITX	.	ITX	.	ITX
APR	BDL	1.300	.	.800 <T	.	.900 <T
MAY	BDL	2.500	.	2.500	.	2.000
JUN	BDL	2.400	.	2.600	.	2.900
JUL	BDL	2.400	.	3.400	.	3.400
AUG	BDL	3.300	.	2.800	.	3.200
SEP	BDL	6.500	.	3.800	.	3.900
OCT	BDL	2.000	.	1.500	.	2.100
NOV	BDL	.700 <T	.	1.400	.	1.100
DEC	BDL	2.500	.	2.500	.	2.500
T-CHLOROETHYLENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 10.0 (C2)		
MAR	BDL	ITX	.	BDL	.	ITX
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	.150 <T
JUL	BDL	.050 <T	.	BDL	.	BDL
AUG	BDL	.200 <T	.	.100 <T	.	.150 <T
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	.200 <T	.	BDL
NOV	BDL	.050 <T	.	.100 <T	.	.100 <T
DEC	BDL	BDL	.	.100 <T	.	.100 <T
TOTL TRIHALOMETHANES (UG/L)		DET'N LIMIT = .500		GUIDELINE = 350 (A1)		
MAR	BDL	ITX	.	ITX	.	ITX
APR	BDL	147.800	.	118.000	.	118.000
MAY	BDL	195.300	.	185.300	.	183.000
JUN	BDL	191.700	.	155.100	.	169.400
JUL	BDL	205.800	.	186.600	.	186.100
AUG	.500 <T	178.100	.	160.200	.	174.800
SEP	.700 <T	170.300	.	146.450	.	158.800
OCT	.600 <T	162.200	.	123.300	.	154.100
NOV	BDL	137.400	.	132.500	.	128.450
DEC	BDL	111.350	.	101.700	.	108.250

Table 6

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
BACTERIOLOGICAL			
STANDARD PLATE COUNT MEMBRANE FILTRATION	CT/ML	0	500/ML(A1)
P/A BOTTLE		0	0 (A1*)
TOTAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	5/100mL(A1)
TOTAL COLIFORM BACKGROUND MF	CT/100ML	0	N/A
CHLOROAROMATICS			
HEXACHLOROBUTADIENE	NG/L	1.000	450. (D4)
1,2,3-TRICHLOROBENZENE	NG/L	5.000	10000 (I)
1,2,3,4-TETRACHLOROBENZENE	NG/L	1.000	10000 (I)
1,2,3,5-TETRACHLOROBENZENE	NG/L	1.000	10000 (I)
1,2,4-TRICHLOROBENZENE	NG/L	5.000	10000 (I)
1,2,4,5-TETRACHLOROBENZENE	NG/L	1.000	38000 (D4)
1,3,5-TRICHLOROBENZENE	NG/L	5.000	10000 (D4)
HEXACHLOROBENZENE	NG/L	1.0	10. (C1)
HEXACHLOROETHANE	NG/L	1.000	1900. (D4)
OCTACHLOROSTYRENE	NG/L	1.000	N/A
PENTACHLOROBENZENE	NG/L	1.000	74000 (D4)
2,3,6-TRICHLOROTOLUENE	NG/L	5.000	N/A
2,4,5-TRICHLOROTOLUENE	NG/L	5.000	N/A
2,6,A-TRICHLOROTOLUENE	NG/L	5.000	N/A
CHLOROPHENOLS			
2,3,4-TRICHLOROPHENOL	NG/L	50.	N/A
2,3,4,5-TETRACHLOROPHENOL	NG/L	50.	N/A
2,3,5,6-TETRACHLOROPHENOL	NG/L	50.	N/A
2,4,5-TRICHLOROPHENOL	NG/L	50.	2600000 (D4)
2,4,6-TRICHLOROPHENOL	NG/L	50.	5000. (B1)
PENTACHLOROPHENOL	NG/L	50.	60000. (B1)
CHEMISTRY (FLD)			
FIELD COMBINED CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD FREE CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD TOTAL CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD PH	DMSNLESS	N/A	6.5-8.5(A4)
FIELD TEMPERATURE	°C	N/A	<15 °C(A1)
FIELD TURBIDITY	FTU	N/A	1.0 (A1)
CHEMISTRY (LAB)			
ALKALINITY	MG/L	.200	30-500(A4)
CALCIUM	MG/L	.100	100. (F2)
CYANIDE	MG/L	.001	.20(A1)
CHLORIDE	MG/L	.200	250. (A3)
COLOUR	TCU	.5	5.0 (A3)
CONDUCTIVITY	UMHO/CM	1.	400. (F2)
FLUORIDE	MG/L	.01	2.4 (A1)
HARDNESS	MG/L	.50	80-100(A4)
MAGNESIUM	MG/L	.05	30. (F2)

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE	
NITRITE	MG/L	.001	1.0	(A1)
TOTAL NITRATES	MG/L	.02	10.	(A1)
NITROGEN TOTAL KJELDAHL	MG/L	.02	N/A	
PH	DIMENSLESS	N/A	6.5-8.5	(A4)
PHOSPHORUS FIL REACT	MG/L	.0005	N/A	
PHOSPHORUS TOTAL	MG/L	.002	.40	(F2)
TOTAL SOLIDS	MG/L	1.	500.	(A3)
TURBIDITY	FTU	.02	1.0	(A1)
METALS				
ALUMINUM	UG/L	.050	100.	(A4)
ANTIMONY	UG/L	.050	146.	(D4)
ARSENIC	UG/L	.050	50.	(A1)
BARIUM	UG/L	.020	1000.	(A1)
BORON	UG/L	.200	5000.	(A1)
BERYLLIUM	UG/L	.010	0.20	(H)
CADMIUM	UG/L	.050	5.0	(A1)
COBALT	UG/L	.020	1000.	(H)
CHROMIUM	UG/L	.100	50.	(A1)
COPPER	UG/L	.100	1000.	(A3)
IRON	UG/L	5.0	300.	(A3)
MERCURY	UG/L	.01	1.0	(A1)
MANGANESE	UG/L	.050	50.	(A3)
MOLYBDENUM	UG/L	.020	500.	(H)
NICKEL	UG/L	.100	50.	(F3)
LEAD	UG/L	.020	50.	(A1)
SELENIUM	UG/L	.200	10.	(A1)
SILVER	UG/L	.020	50.	(A1)
STRONTIUM	UG/L	.100	2000.	(H)
THALLIUM	UG/L	.010	13.	(D4)
TITANIUM	UG/L	.100	N/A	
URANIUM	UG/L	.020	20.	(A2)
VANADIUM	UG/L	.020	100.	(H)
ZINC	UG/L	.020	5000.	(A3)
PHENOLICS				
PHENOLICS (UNFILTERED REACTIVE)	UG/L	.2	2.0	(A3)
PESTICIDES & PCB				
ALDRIN	NG/L	1.0	700.	(A1)
AMETRINE	NG/L	50.	300000.	(D
ATRAZINE	NG/L	50.	60000.	(B3)
ALPHA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	700.	(G)
BETA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	300.	(G)
GAMMA HEXACHLOROCYCLOHEXANE(LINDANE)	NG/L	1.0	4000.	(A1)
ALPHA CHLORDANE	NG/L	2.0	7000.	(A1)
GAMMA CHLORDANE	NG/L	2.0	7000.	(A1)
BLADEX	NG/L	100.	10000.	(B3)
DIELDRIN	NG/L	2.0	700.	(A1)
METHOXYCHLOR	NG/L	5.0	100000.	(A1)
ENDOSULFAN 1 (THIODAN I)	NG/L	2.0	74000.	(D4)
ENDOSULFAN 2 (THIODAN II)	NG/L	4.0	74000.	(D4)
ENDRIN	NG/L	4.0	200.	(A1)
ENDOSULFAN SULPHATE(THIODAN SULPHATE)	NG/L	4.0	N/A	
HEPTACHLOR EPOXIDE	NG/L	1.0	3000.	(A1)

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE	
HEPTACHLOR	NG/L	1.0	3000.	(A1)
METOLACHLOR	NG/L	500.	50000.	(B3)
MIREX	NG/L	5.0	N/A	
OXYCHLORDANE	NG/L	2.0	N/A	
O,P-DDT	NG/L	5.0	30000.	(A1)
PCB	NG/L	20.0	3000.	(A2)
O,P-DDD	NG/L	5.0	N/A	
PPDDE	NG/L	1.0	30000.	(A1)
PPDDT	NG/L	5.0	30000.	(A1)
ATRATONE	NG/L	50.	N/A	
ALACHLOR	NG/L	500.	35000.	(D2)
PROMETONE	NG/L	50.	52500.	(D3)
PROPAZINE	NG/L	50.	16000.	(D2)
PROMETRYNE	NG/L	50.	1000.	(B3)
SENCOR (METRIBUZIN)	NG/L	100.	80000.	(B2)
SIMAZINE	NG/L	50.	10000.	(B3)
POLYAROMATIC HYDROCARBONS				
PHENANTHRENE	NG/L	10.0	N/A	
ANTHRACENE	NG/L	1.0	N/A	
FLUORANTHENE	NG/L	20.0	42000.	(D4)
PYRENE	NG/L	20.0	N/A	
BENZO(A)ANTHRACENE	NG/L	20.0	N/A	
CHRYSENE	NG/L	50.0	N/A	
DIMETHYL BENZO(A)ANTHRACENE	NG/L	5.0	N/A	
BENZO(E)PYRENE	NG/L	50.0	N/A	
BENZO(B)FLUORANTHENE	NG/L	10.0	N/A	
PERYLENE	NG/L	10.0	N/A	
BENZO(K)FLUORANTHENE	NG/L	1.0	N/A	
BENZO(A)PYRENE	NG/L	5.0	10.	(B1)
BENZO(G,H,I)PERYLENE	NG/L	20.0	N/A	
DIBENZO(A,H)ANTHRACENE	NG/L	10.0	N/A	
INDENO(1,2,3-C,D)PYRENE	NG/L	20.0	N/A	
BENZO(B)CHRYSENE	NG/L	2.0	N/A	
CORONENE	NG/L	10.0	N/A	
SPECIFIC PESTICIDES				
TOXAPHENE	NG/L	N/A	5000.	(A1)
2,4,5-TRICHLOROBUTYRIC ACID (2,4,5-T)	NG/L	50.	280000.	(B1)
2,4-DICHLOROBUTYRIC ACID (2,4-D)	NG/L	100.	100000.	(A1)
2,4-DICHLORORPHENOXYBUTYRIC ACID	NG/L	200.	18000.	(B3)
2,4-D PROPIONIC ACID	NG/L	100.	N/A	
DICAMBA	NG/L	100.	87000.	(B3)
PICHLORAM	NG/L	100.	2450000.	(D3)
SILVEX (2,4,5-TP)	NG/L	50.	10000.	(A1)
DIAZINON	NG/L	20.	14000.	(A1)
DICHLOROVOS	NG/L	20.	N/A	
DURSBAN	NG/L	20.	N/A	
ETHION	NG/L	20.	35000.	(G)
GUTHION	NG/L	N/A	N/A	
MALATHION	NG/L	20.	160000.	(G)
MEVINPHOS	NG/L	20.	N/A	
METHYL PARATHION	NG/L	50.	7000.	(B3)
METHYLTRITHION	NG/L	20.	N/A	
PARATHION	NG/L	20.	35000.	(B1)

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
PHORATE (THIMET)	NG/L	20.	35. (D2)
RELDAN	NG/L	20.	N/A
RONNEL	NG/L	20.	N/A
AMINOCARB	NG/L	N/A	N/A
BENONYL	NG/L	N/A	N/A
BUX (METALKAMATE)	NG/L	2000.	N/A
CARBOFURAN	NG/L	2000.	18000. (D3)
CICP (CHLORPROPHAM)	NG/L	2000.	350000. (G)
DIALLATE	NG/L	2000.	30000. (H)
EPTAM	NG/L	2000.	N/A
IPC	NG/L	2000.	N/A
PROPOXUR (BAYGON)	NG/L	2000.	90000. (G)
SEVIN (CARBARYL)	NG/L	200.	70000. (A1)
SUTAN (BUTYLATE)	NG/L	2000.	245000. (D3)
VOLATILES			
BENZENE	UG/L	.050	5.0 (B1)
TOLUENE	UG/L	.050	24.0 (B4)
ETHYLBENZENE	UG/L	.050	2.4 (B4)
PARA-XYLENE	UG/L	.100	300. (B4)
META-XYLENE	UG/L	.100	300. (B4)
ORTHO-XYLENE	UG/L	.050	300. (B4)
1,1-DICHLOROETHYLENE	UG/L	.100	7.0 (D1)
ETHLYENE DIBROMIDE	UG/L	.05	50. (G)
METHYLENE CHLORIDE	UG/L	.500	1750. (D3)
TRANS-1,2-DICHLOROETHYLENE	UG/L	.100	350. (D3)
1,1-DICHLOROETHANE	UG/L	.100	N/A
CHLOROFORM	UG/L	.100	350. (A1+)
1,1,1-TRICHLOROETHANE	UG/L	.020	200. (D1)
1,2-DICHLOROETHANE	UG/L	.050	5.0 (D1)
CARBON TETRACHLORIDE	UG/L	.200	5.0 (D1)
1,2-DICHLOROPROPANE	UG/L	.050	10.0 (G)
TRICHLOROETHYLENE	UG/L	.100	5.0 (D1)
DICHLOROBROMOMETHANE	UG/L	.050	350. (A1+)
1,1,2-TRICHLOROETHANE	UG/L	.050	.60(D4)
CHLORODIBROMOMETHANE	UG/L	.100	350. (A1+)
TETRACHLOROETHYLENE	UG/L	.050	10.0 (C2)
BROMOFORM	UG/L	.200	350. (A1+)
1,1,2,2-TETRACHLOROETHANE	UG/L	.050	0.17(D4)
CHLOROBENZENE	UG/L	.100	1510. (D3)
1,4-DICHLOROBENZENE	UG/L	.100	5.0 (B1)
1,3-DICHLOROBENZENE	UG/L	.100	130. (G)
1,2-DICHLOROBENZENE	UG/L	.050	200. (B1)
TRIFLUOROCHLOROTOLUENE	UG/L	.100	N/A
TOTAL TRIHALOMETHANES	UG/L	.500	350. (A1)
STYRENE	UG/L	.05	46.5 (D2)